

Evaluation of the In-School Tobacco Use Prevention Education Program, 2007-2008: Technical Findings and Documentation

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California Tobacco Control Program

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CHAPTER 1: INTRODUCTION AND METHODS

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CHAPTER 1: INTRODUCTION AND METHODS

Introduction

The *2007-08 In-School Evaluation of TUPE Programs (IETP)* was conducted to fulfill the enabling legislation requirements for Proposition (Prop) 99 (Assembly Bills 75, 99, and 816; and Senate Bill 391). Current pertinent legislative language requires that the California Department of Public Health, Tobacco Control Program evaluate the effectiveness of the school-based Tobacco Use Prevention Education (TUPE) programs in California. This particular evaluation focused on school-based tobacco use prevention activities in 156 randomly sampled schools (125 high schools; 31 middle schools). The guidelines for evaluating the programs outlined in California Health and Safety Code Section 104375 call for an assessment of school-based tobacco use prevention activities and measurement of student responses to these activities. The evaluation is intended to measure the extent to which programs funded under Prop 99 promote two major goals: protection of nonsmokers and children from secondhand smoke, and reduction of tobacco usage by adults and youth.

This report is the seventh biennial report, following up on results presented in the 2001-2002 (report #4), 2003-04 IETP (report #5), 2005-06 IETP (report #6) and three previous Independent Evaluation Student Survey (IESS) reports (Independent Evaluation Consortium, 1998a, 1998b, and 2003) (reports #1, #2, & #3). Most of the questions included in the 2007-08 IETP were taken from the previous evaluations, to permit comparability of findings across reports. This newest IETP collected extensive information on adolescent tobacco use and its correlates (e.g., attitudes, exposure to media, social norms) through the in-school administration of the 2007-08 California Student Tobacco Survey (CSTS). The evaluation also collected data on beliefs and knowledge about tobacco education program implementation and prevention efforts from teachers, school administrators, school TUPE/health coordinators, and district TUPE/health coordinators. The current report uses data from all of these sources to examine TUPE program implementation and program effectiveness. This first chapter provides a summary of the design and methodology used in the 2007-08 IETP.

The IETP provides an excellent opportunity to understand tobacco use patterns and to assess tobacco use prevention activities directed at youth in California. Studies show that 80 percent of United States (U.S.) adult smokers between the ages of 30 and 39 began to smoke during their adolescent years (CDC, 1994, Anda et al., 1999). These findings suggest that if youth smoking can be prevented, most youth will never start smoking when they become adults [USDHSS, 1994].

On the other hand, recent success at reducing younger adolescent tobacco use has been associated with offsetting increases in initiation by older adolescents and young adults. (Glied, 2003;Trinidad, 2004)

Background

In November 1988, California voters approved the Tobacco Tax and Health Protection Act of 1988 (Prop 99), which added a 25-cent tax to each pack of cigarettes and a proportional amount to other tobacco products sold in the state. The additional revenues resulting from this increase in the tobacco excise tax were earmarked for tobacco-related research, health education, health care, and environmental conservation. Twenty percent of the Prop 99 revenues were appropriated to the Health Education Account (HEA) to support a comprehensive tobacco use prevention education and media campaign.

Approximately one-third of the overall HEA budget was allocated to the California Department of Education (CDE). Ninety percent of these funds are used for school-based, TUPE programs in school districts. The remaining ten percent of local assistance funds are used for innovative and promising projects, programs for Indian Education Centers, research, curricular support, dissemination, and accountability. Prior to 1994, the CDE allocated school-based TUPE funds on an entitlement basis to all schools that served students in grades K through 12. Since 1994, CDE has allocated school-based TUPE funds to school districts using two different mechanisms. First, funds for TUPE programs in grades four through eight have been allocated to districts on an "entitlement basis" – "all schools in tobacco-free school districts serving students in grades four through eight received funding for tobacco use prevention services based on average daily attendance. Second, a "competitive grant" process was used to allocate funds for programs in grades 9 through 12; and, more recently, for innovative programs in grades 6 through 8. As of July 1, 2009, grades 4 through 8 will no longer receive entitlement funding from state TUPE funds. Instead, TUPE funds will be focused on grades six through twelve through a competitive grants process. Districts with multifaceted programs with measurable objectives, strong rationales for interventions, high levels of community and school involvement, high quality monitoring and evaluation activities, and highly qualified personnel are more likely to receive competitive grants than other districts. It was once thought that both entitlement and competitive program funds were required to support tobacco-specific instruction, reinforcement activities, special events, and cessation programs for students but with TUPE resources declining, policy makers decided to be more judicious in allocating TUPE funding. The IETP provides information from data collected in districts supported by both of these mechanisms, with particular attention paid to schools with competitive grants. Particular attention was paid to schools with competitive grants because their additional TUPE resources, compared to non TUPE award schools, were expected to yield measurable improvement in TUPE outcomes. Because TUPE funds were allocated more evenly among middle schools, there was less expectation of finding differences between schools in relation to TUPE funding.

Evaluation Design

As discussed above, the IETP relied on data collected from a variety of sources to examine school-based tobacco prevention and intervention activities and student responses to these activities in California public schools. A different data collection instrument was created for each source. Each of the instruments is discussed in more detail below.

Analytic Plan

An analytic plan is inextricably linked to both the evaluation design (sampling and collection strategy) and the evaluation questions to be addressed. Before addressing the specific evaluation questions in detail below, the investigators outline two overarching models that are used to guide this plan: a logic model of the programmatic and natural history processes thought to influence in-school adolescent tobacco use from input to outcomes (logic model); and a statistical model that incorporates the multi-level structure of the data to be collected (the hierarchical linear model).

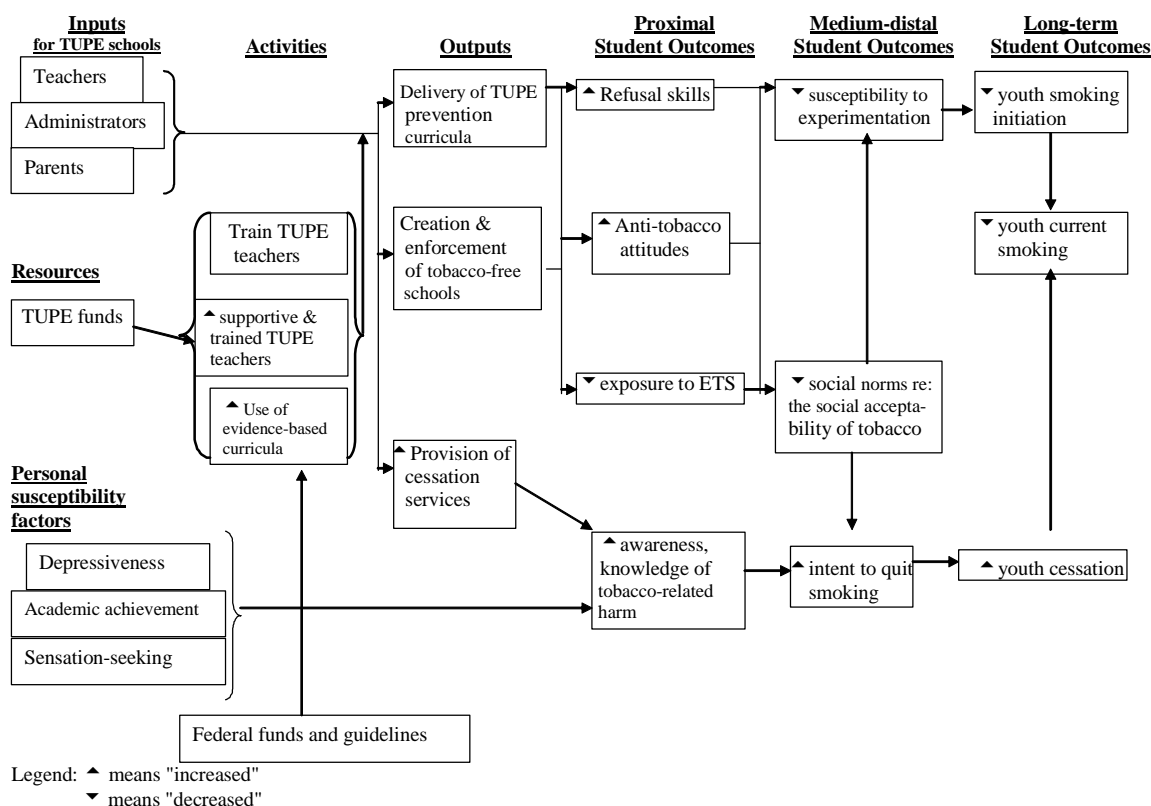
Logic Model.

Figure 1 displays the basic in-school evaluation logic model to be used in this plan. Primary *inputs* were funding and guidelines provided to the schools by state and national sources. *Activities* were measured at the school level, which is the presumed level of the TUPE program intervention. *Outputs* were measured at both the school level and the individual level, to permit modeling school-level and individual-level influences on in-school student tobacco use. Measurements of outputs were gathered primarily from vertically integrated surveys of adult school staff. The adult school staff self-reports were used as indices of TUPE program implementation, and of *compliance* with CDC and CDE guidelines for school tobacco control efforts. Measurements of tobacco use outcomes, of course, were obtained from student surveys.

Outcomes are logically ordered to reflect mediating constructs along the hypothesized program impact continuum. Measures of these constructs were gathered primarily from students within the schools and were used to form indices, where appropriate, of specific *Proximal* (tobacco use-related knowledge, attitudes, and skills), *Medium-distal* (tobacco use-related norms and intentions), and *Long-term* (tobacco use initiation, consumption, and cessation) *Outcomes*. Although the relationships among these various outcomes is perhaps best described at the individual student level, their relationship to program inputs, activities, and outputs are more meaningfully described at the school level. That is, with regard to evaluating TUPE program impact, outcomes are best conceptualized and analyzed as levels and rates of the outcome constructs at each unit of intervention (the school) as opposed to individual responses. This type of conceptualization is in keeping with the population-based approach of the TUPE program.

Other contextual demographic factors such as school size, region, area household income indicators, and other comprehensive tobacco control program components external to TUPE program inputs such as anti-tobacco mass media exposure and tobacco access restrictions, are potentially competing or confounding influences but are not shown in the logic model (figure 1) for simplicity. However, these contextual influences are implicitly acknowledged at the school and student level and were measured and controlled for.

Figure 1. In-School Evaluation of Tobacco Use Education Programs (IETP) Logic Model diagram



Statistical Model

The evaluation uses a multi-level design that encompasses cross-sectional data from students, teachers, and administrators at schools at three points in time: data from the current collection effort (2007) and data from the 2003 and 2005 WestEd evaluations. The design also includes a school-longitudinal component, re-assessing a subset of high schools and birth cohorts within those schools originally from the 2003 evaluation sample and reassessed in 2005 and 2007. This is NOT a student-longitudinal component inasmuch as a new random sample of students was drawn in the schools at each time point. Therefore most of the students will have participated in the CSTS at only one of these time points.

The first eight chapters of this report focus on the information obtainable from the cross-sectional data collected in 2007-2008 exclusively. The statistical methodology and results of the longitudinal analysis involving school-level data collected in 2003-2004, 2005-2006, and 2007-2008 are not discussed here but are instead addressed in Chapter 9 of this report.

Evaluation Questions. This section outlines the analysis plan associated with each of the six evaluation questions outlined in the Request for Proposal.

(1a) How do current California students compare to past California students on tobacco use, knowledge and attitude?

Trend analysis. To examine trends in student tobacco use and its precursors, the investigators compared the estimates of these variables from the 2007-08 CSTS to those collected two, four, and six years earlier in the 2001-2002, 2003-2004, 2005-2006 CSTS surveys. Overall population estimates and their standard errors were computed for each key outcome measure at each grade level and each time point using STATA 9 software appropriate for complex survey designs. These estimates incorporated appropriate design weights and design structure (reflecting regional stratification and clustering of respondents in schools). Cross-sectional trends are reported in Chapter 2. Tests of trends over the recent six-year period are reported in Chapter 9.

Sub-Group analysis. The investigators' trend analysis will also examine the result for various demographic sub-groups, as sample sizes permit. At a minimum the investigators will examine and present California student time trends by the major race/ethnic groups and gender, which are individual level variables, and geographic regions and school type (middle and high), which are school level.

(1b) How do the current California students compare to students in the rest of the U.S. on these measures?

National comparisons. To examine how California students compare to students in the rest of the country with regard to tobacco use and its precursors the investigators compared the 2007-08 CSTS estimates to those of the 2006 National Youth Tobacco Survey (NYTS, at <http://www.cdc.gov/tobacco/NYTS/nyts2006.htm>) estimates for measures that the two surveys had in common. NYTS estimates are reported in Chapter 2. Similarly, results from the 2007-2008 CSTS are compared to the recent nationally representative tobacco use estimates from in-school youth obtained as part of the Monitoring the Future Survey [Johnston et al., 2008].

The investigators hypothesized that California students would continue in 2007-08 to show values in tobacco related behaviors, knowledge and attitudes suggesting greater antipathy to tobacco use than those of students in the nation at large. Both the CSTS and NYTS estimates were adjusted for sample weighting and the sampling design.

(2) Are the relationships between inputs, such as TUPE funding and administrative support, related to the Proximal outcomes?

Models of Inputs, Practices, and Outcomes. The investigators hypothesized that there would be considerable variability in the Inputs (TUPE funding), Practices (class instruction), and Outcomes (smoking behaviors). Chapter 7 reports cross-sectional information about Inputs and Practices; Chapter 8 reports cross-sectional information about Inputs and Outcomes. Chapter 9 reports the results of longitudinal analyses examining a sequence of models. The initial models, of course, examined *Inputs* as predictors of Practices and Proximal outcome variables. For example, school level measures of administrative support (AS), as measured by the school administrative staff surveys, were used to predict mean levels of effective curriculum delivery (ECD) as reported by the teachers in their schools. Similarly, the investigators evaluated different models of relationships along the hypothesized causal chains in the logic model. For example, the investigators tested parameters in a model of teacher "effective curriculum delivery" practices to predict mean levels of anti-tobacco attitudes (ATA) among the students at their schools.

(3) Are the Medium-distal- and Long-term outcomes related to each other?

Individual level Outcome Models. The analysis plan used to answer this set of questions was the same in sequential form as that used to address the impact of Inputs on Practices. The investigators examined each hypothesized link between short-, medium-distal-, and longer-term outcomes. These analyses were all conceived as being at the individual student level, although the models included school-level information as well.

(4) How do schools in the state compare to the federal CDC and USDE guidelines?

Compliance Indices. Previous IETP reports have assessed the comprehensiveness of TUPE programming in relationship to CDC guidelines. The CDC guidelines focus on a wide range of activities – policy, curriculum content, grade coverage, teacher training to conduct TUPE classes, parent and community involvement, cessation services, and assessments while the U.S. Department of Education focuses on use of evidence-based curricula and utilization of needs assessments. The investigators therefore assessed multiple items for each guideline across a number of sources (e.g., teachers, administrators, TUPE coordinators) of information about compliance with these various guideline elements.

Prior analyses of these types of data have focused on the examination of each item and/or source for specifics of each guideline element. The hope was that this newest IETP report would focus on the creation of a small set of guideline component indices and an overall index of compliance to the guidelines to be used throughout the report. The psychometric requirements of such an index were not fully realized with the data collected for this report. Nonetheless, the investigators report in Chapter 9 candidate indicators of each of CDC's 6 guidelines examined to comprise a summary index. Part of the challenge was the different perspectives and experiences that TUPE-experienced teachers brought to the issue of school-based tobacco use prevention as compared to district staff and school administrative staff. Reports from TUPE-experienced teachers were significantly related to student tobacco use more often than reports from other district staff, but reports from school administrators and from school TUPE coordinators were also significantly related to student tobacco use, as is described in Chapters 7 and 8. In other words, TUPE-experienced teachers were either more influential in affecting student tobacco use or understood better than other school staff what influences affected student tobacco use.

(5) Is a school's TUPE implementation related to students' tobacco use, knowledge, and attitudes over the six year period?

Measures relating to hypothesized elements of tobacco use prevention guidelines could be grouped and evaluated for impact on student tobacco use outcomes and precursors

of these outcomes over time, using the longitudinal cohort of 65 high schools, of which 53 participated in the 2007-2008 survey.

Measurement of Outcomes. The investigators examined models for each of the major outcome domains corresponding to proximal short-term outcomes such as attitudes and knowledge, medium-distal-outcomes such as intentions and social norms, and long-term outcomes such as tobacco use uptake, current use, and cessation.

Implementation Index. The measures of program implementation were those component indices derived in response to question 5 above. This step provided information as to potential “key” sub-components of a comprehensive program, that is, those sub-components that seemed to have the most utility in predicting the outcomes. These component indices were examined for their relative and combined influence on outcomes.

(6) What is the relative strength of measured inputs compared to external factors?

Two step models. In the longitudinal analyses reported in Chapter 9, all of the models presented above were further expanded to include a number of external factors as predictors. These external factors include school level information such as school enrollment size or measures of community activity such as enforcement of sales restrictions. By comparing the fit of models with and without these external factors, the investigators statistically can test whether or not the TUPE inputs and practices were contributing to the student tobacco use outcomes

Measures of Context. External or contextual factors were added to the models evaluating implementation indices both to test for the relative strength of the implementation factors compared to the external factors and to control for external differences in schools' compositions in the final models. Receipt of competitive grant funds was considered to be a contextual factor. Other important contextual factors that were included were student reports of non-school program exposures such as anti-tobacco mass media and community activities and school administrator reports of the number of tobacco retailers located near the school.

In addition to the quantitative information described above, the Analytic Plan also included provision for collecting in-depth qualitative data from interviews with key stakeholders.

Key stakeholder interviews:

Using the key stakeholder interviews: Do the appropriate personnel at the school know how TUPE is implemented at their school and are they satisfied with the programs? Is there good compliance with CDE recommendations with respect to using science-based school tobacco prevention programs? What is the level of community involvement?

Telephone interviews were conducted with selected personnel from a subset of participating schools chosen at random from the study sample. Key stakeholder interviews were conducted with: (a) the district administrator in charge of coordinating the district's TUPE program; (b) the school administrator and teacher most knowledgeable about the TUPE program; and (c) classroom teachers. A sub-sample of these stakeholders was interviewed via telephone to obtain more in-depth information about program implementation and use of funding to support the district tobacco control program. Surveyors asked these stakeholders the following questions: (1) which teaching/prevention strategies did their TUPE program appear to be using? and (2) how coordinated/infused did the tobacco prevention appear to be with other elements of school programming and curricula? More specifically, these stakeholders were asked about the history and enforcement of their district's / school's tobacco use policies. They were asked to describe the frequency and perceived effectiveness of TUPE training for teachers. They were also asked to describe their district's / school's provision of cessation services for students and staff who wanted assistance to quit their tobacco use habit.

Sample Design

The sample design included data collection from students, teachers and administrators at the school level, and administrators at the district level. Analytical weights that take into account the complex survey design and that correct for student and school non-response were applied in such a way that the sum of the weights was equal to the total number of respondents. The specific weights are specified below.

The 2007-2008 CSTS

The 2007-2008 CSTS was a school-based, two-stage cluster sample designed to produce representative estimates of tobacco use and attitudes for public school students in grades 6 through 12 in California. The first-stage of the sampling frame consisted of 3,038 public middle and high schools (primary sampling units), after subtracting 65 carryover high schools. This sampling frame came from the 2006-07 California Basic Educational Data System (CBEDS) maintained by CDE. From the 3,038 primary sampling units, 126 schools were selected as the sample of CSTS administration. Among the 126 schools selected, 91 high schools and 35 middle schools were randomly selected with a probability proportionate to the school enrollment size. An additional sixty-five high schools that had participated in the 2003-2004 IETP were deliberately re-invited to participate in the 2007-2008 IETP for the purpose of conducting a school-level longitudinal analysis. To reflect the probabilities of selection of schools originally selected in 2003-2004, the non-carryover schools were treated as if they had been randomly selected in 2003-2004 for prevalence estimation purposes. Of the sampled 191 schools, 152 participated in the survey. Of the 65 high schools that participated in the 2003-04 IETP, fifty-three schools agreed to participate in 2007-2008.

There was a variety of reasons for school non-participation. The most common reason was because administrators felt that their students were already subject to too many other surveys, such as the California Healthy Kids Survey, that were perceived to address more pressing school-related issues (e.g., drug use and violence) than tobacco use. Some of the other more common reasons for non-participation included: scheduling changes, and administrator disinterest in compliance with the requirement to participate if receiving TUPE funding.

At the second stage of sampling, 2 classes per grade were randomly selected from each of the 191 schools, except that in one middle school, the whole grade of grades 6-8 (total of 9 classes) were sampled. All the students within a selected class were eligible to participate. More than three quarters (78.3 percent) of schools employed a passive informed consent procedure, which facilitated recruitment of respondents. The CSTS's complex sampling design required the calculation of sample weights to derive accurate point estimates and adjustments for clustering and stratification in order to compute sampling variances and standard errors. A weight was applied to each student record to account for varying probabilities of selection at each sampling stage, non-response, and disproportionate population sampling. These weights are necessary in order for the results to be generalized to all students attending public middle and high schools in grades 6 through 12 in California.

The weight used for estimation is given by:

$$W_S = W_{S1} * W_{S2} * F_{S1} * F_{S2} * F_{S3}$$

Where W_{S1} represents the inverse of the probability of selecting a school, W_{S2} is the inverse of the probability of selecting a classroom within each school for each grade, F_{S1} is a school-level non-response adjustment factor, F_{S2} is a student-level non-response adjustment factor, and F_{S3} is a post-stratification adjustment factor calculated by gender, grade (grades 6 through 12), and ethnicity (six ethnic groups). The weights were also scaled so that the sum of the weights was equal to the number of respondents.

Teacher/Administrator Surveys

The sampling frame for the teacher, school administrator, and school TUPE coordinator surveys (described below) consisted of all schools/classrooms that administered the CSTS. Thus, the *school* teacher/administrator samples represent teachers and

administrators who serve students in the CSTS sample. Similarly, the district coordinator sample represents *district* TUPE/Title IV¹ coordinators who serve CSTS students. As was done for the CSTS, a weight was applied to each record in the teacher/administrator surveys to account for differences in student enrollment across regions, districts, and schools.²

Survey Participation Rates and Sample Characteristics

The response rates for schools and students were acceptable, especially in light of the recent emphasis on high stakes academic performance testing that has made school administrators less willing to use class time for the administration of social surveys. Moreover, schools are increasingly asked to participate in surveys conducted by outside agencies in addition to the accountability measures required by funding agencies from which schools receive grants.

CSTS

Of the 191 schools eligible to participate in the IETP, student data were received from 156 schools – yielding a school response rate of 81.7 percent. The student response rate was 81.0 percent. Thus, the school- and student-level response rates resulted in an overall response rate of 66.2 percent. As noted above, weights were calculated to account for non-response.

School level participation rates were 88.6 percent and 80.1 percent for middle schools and high schools, respectively. Student level participation rates were 73.6 percent for middle schools, and 81.6 percent for high schools. No differences in terms of school level and student level participation rates were found between middle schools and high schools. The overall response rate for middle schools and high schools were 65.2 percent and 64.9 percent, respectively. Table 1.1 presents school participation rates by

¹ In this context Title IV refers to that section of the U.S. Education Code that governs the use of federal resources for combating student substance abuse and addressing student violence, notably through the Safe and Drug-Free Schools Program of the U.S. Department of Education.

² The teacher/administrator weights were calculated using an algorithm patterned after the weighting algorithm used to weight the student data. The weights were given by:

$$W_A = W_{A1} * F_{A1} * F_{A2}$$

where W_{A1} represents the inverse of the number of respondents within a school (district), F_{A1} is the ratio of region enrollment to state enrollment, and F_{A2} is the ratio of school/district enrollment to the total enrollment of responding schools/districts within a region. The teacher/administrator weights were scaled so that the sum of the weights was equal to the number of respondents.

TUPE grantee status in high schools. The numbers indicate that school participation rates were non-significantly higher in high schools with competitive TUPE grants than in other schools (84.6 percent for current grantees vs. 76.9 percent for current non-grantees). This non-significant pattern was a surprise: schools that do not have a TUPE grant were expected to have less incentive to participate than schools that have a grant.

Table 1.1 High School Participation Rates by Various Characteristics

	High Schools	
	Non-Participants	Participants
Overall Percent	21.8%	78.2%
Current TUPE Grantee Status		
Non-TUPE	23.1%	76.9%
TUPE	15.4%	84.6%
Ever TUPE Grantee Status		
Never-TUPE	23.3%	76.7%
Ever TUPE	14.8%	85.2%
Number of Schools	34	122

Notes: Source: 2007-08 CSTS sample definition database and CDE/SHKPO TUPE competitive Grantee Database.

Table 1.2 shows various demographic characteristics by school participation. Overall, the numbers provide no evidence that participating schools differ from those that did not participate with regards to enrollment, ethnic composition, the percentage of students receiving subsidized meals, and English language learners, or academic test scores.

Table 1.2 School Characteristics by CSTS School Participation

	All Schools		Middle Schools		High Schools	
	Non-Participants	Participants	Non-Participants	Participants	Non-Participants	Participants
Average size of school Enrollment	1880	2079	500	1115	2047	2323
Ethnicity						
Asian	9.9%	10.7%	1.9%	6.5%	10.1%	11.2%
Hispanic/Latino(a)	40.7%	43.5%	40.8%	55.4%	40.7%	42.0%
African American	10.0%	6.6%	18.8%	9.1%	9.7%	6.3%
Caucasian	31.0%	32.3%	28.5%	23.3%	31.1%	33.3%
Reduced/Free meals	41.1%	38.3%	60.6%	60.5%	40.4%	35.5%
English Language	14.1%	14.6%	14.8%	23.5%	14.1%	13.6%
Academic Performance Index Scores						
	717.5	735.6	674.8	727.6	723.1	737.6

Notes: Source: 2007-08 CSTS sample definition database and CBEDS.

Table 1.3 presents demographic characteristics based on the CSTS and CBEDS data. A comparison of CSTS and CBEDS results shows few substantial differences-although CSTS student data appear to over-represent 6th graders. The CSTS sample weights were adjusted to account for the exclusion of 6th graders in standalone elementary schools (but not from grades 6-8 middle schools) from the sampling frame, while the CBEDS results did not adjust for this. In addition, the CSTS data appear to slightly over-represent American Indian students and under-represent Hispanic/Latino(a) students compared to CBEDS data. These ethnic differences, however, should be interpreted with caution because the CSTS and CBEDS use different methodologies to assess ethnicity. The population estimates presented in the last few rows of the table are quite similar across the two data sources. Overall, the estimates derived from the two data sources appear to be similar.

Table 1.3 Sample School/Student Characteristics

	CSTS	CBEDS
Urbanicity ^A -		
Large City	19.3%	19.9%
Midsized City	25.0%	20.7%
Urban Fringe – Large City	40.2%	35.6%
Urban Fringe – Midsized City	6.2%	8.0%
Large Town	-----	0.1%
Small Town	0.5%	1.1%
Rural	6.7%	5.3%
No data	2.1%	9.4%
School Grade		
6 th	3.7%	14.5%
7 th	5.0%	14.7%
8 th	5.4%	14.7%
9 th	19.0%	15.8%
10 th	21.4%	14.7%
11 th	21.7%	13.4%
12 th	23.8%	12.2%
Gender		
Female	50.1%	49.2%
Male	49.9%	50.8%
Ethnicity ^B		
African American	6.0%	7.6%
Asian/PI	14.3%	11.8%
Hispanic	46.4%	46.7%
Other	3.5%	3.2
White	29.7%	30.6%
Population Size	2,812,655	3,282,620
Total	26,202	
Number of observations		

Notes: Source: 2007-08 CSTS and CBEDS.

^A Population areas as defined by U.S. Census Bureau.

^B CSTS estimates are based on two questions: one asking respondents to identify one ethnic category that best describes her/himself, the second question asking respondents to indicate whether they were culturally Hispanic or not.

Adult Participants

Table 1.4 presents survey response rates for the teacher/administrator surveys. The school teacher/administrator response rates ranged from 82% to 93%, rates higher than reported in other studies involving teacher surveys (e.g., Buston et al., 2002). Teachers exhibited the highest response rates, followed respectively by school administrators, school coordinators, and district coordinators. No substantial participant/non-participant differences in school characteristics were found. However, district coordinator participation was higher among TUPE grantee districts than non-grantee districts (92.9% percent vs. 80.2 percent, respectively).

Table 1.4 Adult Survey Participation Rates				
Survey Participants	Number participating	Participation Rate	Participation rate for TUPE grantees	Participation for non-TUPE grantees
			N = 56 schools	N = 97 schools
Teacher	876	90.0%	99.0% ^a	100% ^a
School Administrator	133	87.5%	87.5%	87.5%
School Coordinator	132	86.8%	87.5%	86.5%
District Coordinator	103	84.8%	92.9%	80.2%*

^a Percent of schools with at least one teacher responding; almost all schools had at least one of their teachers selected for the survey complete the teacher questionnaire.

* P < 0.05 for difference between TUPE and non-TUPE grantees

Data Collection Instruments

This next section presents details of each of the survey instruments for students, teachers, site administrators, site coordinators, and district coordinators.

CSTS

The 2005-2006 student survey (CSTS) included 99-item multiple-choice questions, with item content based largely on the questions found in the National Youth Tobacco

Survey (NYTS-U.S.).³ On most items, respondents were asked to select only one response that best represented their behaviors, attitudes, knowledge and awareness about tobacco and tobacco use prevention. The majority of students were able to complete the entire survey during the allotted class period. All student responses were recorded on a separate 99-item scannable answer sheet, where students bubbled-in their responses. The survey was typed in large, boldface, and easy-to-read type, and contained user-friendly graphics to encourage student participation. Surveys were bound in a paperback booklet with directions printed on the front. Student surveys were routinely collected after survey administration and checked for stray marks or writing. Spanish translations were made available to all schools. Almost all students chose to complete the survey in English. The purpose of providing a Spanish version to the schools was primarily to make it easy for Spanish-speaking parents to review the survey if they wanted to, before consenting to their child's participation. The Spanish language version was generated by a professional translation agency, which back-translated the first translation and then made additional modifications to the first translation in the few instances where the meaning of the back-translation diverged from the original. The CSTS covered the following areas of content:

1. Student Demographics. Five questions ascertained students' age, gender, grade level, and ethnicity.
2. Tobacco Use Prevalence and Patterns. The items on tobacco use covered lifetime, six month, and 30-day use of tobacco. These are standard items comparable to those found in major national surveys such as the NYTS. Items also addressed quit attempts, brand preference, intent to use, and acquisition of the tobacco use habit.
3. Attitudes and Beliefs about Tobacco Use. These items asked about friends' use, perceived prevalence of friends' use, perceived harm from using tobacco, and perceived social consequences of tobacco use.
4. Media and Social Marketing Influences. The media influence items were intended to elicit information about exposure to various anti-tobacco media campaigns. They also assessed pro-tobacco and anti-tobacco social marketing campaigns and respondents' attitudes and beliefs about the effectiveness of these campaigns.
5. Exposure to Educational Programs at School. These items asked respondents about the types of tobacco-related programs and policies at their school, the frequency with

³ See <http://www.cdc.gov/tobacco/NYTS/nyts2004.htm>

which they were exposed to educational messages about the harmful effects of tobacco, and how to counter peer and media influences to use tobacco. These were included to assess how, as well as, the extent to which tobacco prevention and intervention programs were being implemented in the school.

Teacher Surveys

Teachers in each classroom of surveyed students were asked to complete a 63-item questionnaire while their students were completing the CSTS. The teacher survey was based largely on the teacher survey used by the IESS (1998a, 1998b, 2003). The adult surveys asked about attitudes toward school-based tobacco use prevention activities, tobacco use prevention programs and policies at their school, and their own personal tobacco-related attitudes and behaviors. With the exception of one open-ended question, the survey was comprised of close-ended questions, with some opportunities to write in additional information (curricula titles, activities, topics, etc.) in blank spaces. On occasion, teachers were asked to “mark all responses that apply.” However, most teachers circled or checked-off the most accurate single response in the spaces provided on the survey. For instance, on a question about ten possible barriers to teaching TUPE lessons and an eleventh “other” barrier that they could specify themselves, the average number of barriers selected was 2.2 (range = 0 to 9) where half the respondents (50.9%) selected just one barrier. At the end of the survey, there was a “comments” section, where teachers could voluntarily share any personal comments about the tobacco use prevention program. This comments section permitted teachers to mention challenges or benefits of the TUPE program that had not been covered by the preceding questions. Only 89 teachers (7.9%) availed themselves of this opportunity, suggesting that the previous questions had been sufficiently exhaustive about content and procedures used to implement TUPE activities at the teachers' school so that additional questions or comments were not needed.

School Administrator Survey

A school site administrator (e.g., principal, assistant principal, or vice principal) from each school was asked to fill out a 39-item questionnaire regarding the administration of tobacco programs at their school. The survey asked about the relative priority given to tobacco use prevention education at their site compared to other priorities, about school-level tobacco use policies and practices, and the administrator's personal experience with smoking. As with the teacher survey, the school administrator survey was based on the IESS (1998a, 1998b, 2003).

School TUPE/Health Coordinator Survey

A 67-item multiple-choice and free-response (blank spaces, one open-ended question and comments section) questionnaire was given to TUPE site coordinators or health teachers at each school site. The person in this position at the school was asked about their experience with tobacco use prevention and intervention programs, their role in tobacco use prevention and education, barriers to prevention and their perceptions about student tobacco use, and the school's policies and procedures for addressing tobacco use on school property.

District TUPE/Title IV/Health Coordinator Survey

After school site administration of the evaluation was complete, district level TUPE or Title IV Coordinators were mailed a 42-item questionnaire. Many of the questions paralleled those asked of the school administrators. However, the primary aim of the District Coordinator Survey was to elicit responses about the *district-level* approach to tobacco use prevention and intervention programming. Coordinators were asked about staffing for TUPE, professional development and training, experience with and exposure to CDC's Guidelines for School Health Programs to Prevent Tobacco Use and Addiction, as well as their perceptions/knowledge about commonly implemented approaches to tobacco use prevention at their schools.

Data Collection and Processing

WestEd staff coordinated outreach and school recruitment, trained proctors, and scheduled survey administration dates for surveyors, provided survey administration, secured parental consent, provided incentives, and took a variety of steps to assure confidentiality for all respondents. The study instruments and study protocol were approved for use by the Committee for the Protection of Human Subjects for the California Department of Health Services in August, 2007.

The data collection phase began in October, 2007, and ended in March, 2008 – with 53 percent of the schools' surveys taking place prior to January 1st. Recruitment was most intensive at the beginning of this period, but continued, concurrent with data collection, during the entire five months. Once a site was successfully recruited and agreed to participate in the evaluation, trained WestEd survey proctors administered the student surveys at the school sites. A standard class period was needed for the student survey administration. Participants were asked not to write their names anywhere on the questionnaire or answer sheet. All students were told of the voluntary and anonymous nature of the survey prior to survey administration. According to informal reports by CSTS proctors, most students completed the survey in 30 to 40 minutes. Most students (82.6 percent) who participated in the survey did so under conditions of "passive parent consent." Under these conditions the school sent to each student's parents or guardians a letter indicating that their student would be permitted to participate in this survey unless the parents/guardians objected. The remaining

students (17.4%) participated only with the signed consent of their parent(s) or guardian(s). Classroom teachers completed the surveys while their students completed the CSTS. The administrator and TUPE/health coordinator surveys were administered primarily via mail and fax.

Contents of Remaining Chapters

The contents of the remaining chapters are briefly summarized below:

CHAPTER 2: STUDENT-LEVEL DESCRIPTIVE DATA REGARDING TOBACCO USE AND ITS CORRELATES.

- Examines trends in tobacco use;
- Examines patterns of use in California compared to elsewhere in the U.S., by grade, by gender and by ethnic affiliation
- Comparisons of 2003/04 CSTS student data with the previous CSTS, IESS, CSS, NYTS-U.S., and the California sample from the National Youth Tobacco Survey (NYTS-U.S.-CA).

CHAPTER 3: STUDENT-LEVEL DESCRIPTIVE DATA: ATTITUDES AND BELIEFS ABOUT TOBACCO USE.

- Examines student attitudes and cognitive precursors of tobacco use,
- Pro- and anti-tobacco media exposure
- Perceptions of exposure to tobacco lessons.

CHAPTER 4: TEACHER-LEVEL DESCRIPTIVE DATA.

- Examines teachers' history of tobacco use,
- Perceived district and school administrator support for TUPE
- Involvement in student tobacco use prevention.

CHAPTER 5: SCHOOL TUPE COMPETITIVE GRANT FUNDING, PROGRAM EXPOSURE, AND STUDENT TOBACCO USE.

- Examines relationships between middle and high schools that were awarded competitive TUPE grants and schools that did not receive TUPE grants
- Describes the level of teachers' compliance with CDC recommendations for successful tobacco programs in schools.

CHAPTER 6: KNOWLEDGE OF TUPE PROGRAM IMPLEMENTATION.

- Examines information descriptive of school-level TUPE activities obtained from school TUPE coordinators, including adherence to CDC recommendations.

CHAPTER 7: RELATIONSHIP OF SCHOOL-LEVEL POLICIES AND PRACTICES TO STUDENT PROGRAM EXPOSURE.

- Examines how school tobacco policies and practices, such as enforcement of no-use tobacco policies, delivery of tobacco prevention curricula, and sponsorship of school-wide prevention activities are related to students' reported exposure to program services.
- Differences in program delivery in high schools that received competitive TUPE grants relative to those that did not receive grants are also examined.

CHAPTER 8: RELATIONSHIP OF SCHOOL-LEVEL POLICIES AND PRACTICES TO STUDENT TOBACCO USE OUTCOMES.

- Examines how school tobacco policies and practices are related to student tobacco use outcomes
- Competitive grantee and non-grantee differences in the relationships of policies and practices to tobacco use outcomes.

CHAPTER 9: SCHOOL AND BIRTH COHORT ANALYSIS: EXAMINATION OF CHANGES OVER TIME IN HIGH SCHOOLS SURVEYED THREE TIMES

- Re-examines grade trends in smoking and smoking related attitudes over the four-year period 2005-2008 as well as the six-year period 2003-2008.
- Examines summary measures of school program components and their stability over time
- Examines how TUPE funding and district support relate to school implementation component summary measures.
- Examines how smoking-related knowledge, attitudes, and behavioral outcomes relate to each other as students mature over time
- Examine the relative influence of community level influences on student tobacco use over both the four-year and six-year periods

CHAPTER 10: CONCLUSIONS AND RECOMMENDATIONS

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CHAPTER 2: STUDENT-LEVEL DESCRIPTIVE DATA REGARDING TOBACCO USE AND CORRELATES

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CHAPTER 2: STUDENT- LEVEL DESCRIPTIVE DATA REGARDING TOBACCO USE AND CORRELATES

CHAPTER HIGHLIGHTS

- **The prevalence of current tobacco use (cigarettes, smokeless, cigar use) among California youth declined relative to rates reported in 2005-2006, bringing them to parity with rates in 2003-2004. California youth now use tobacco at rates corresponding to national rates.**
- **Prevalence of youth tobacco use remains generally low in California, but grows with each successive grade. For example, current cigarette use ranges from three percent in 6th grade to 21 percent in 12th grade.**
- **Youth tobacco use is more prevalent among boys and among Caucasians.**
- **There appear to be urban versus rural regional differences in lifetime and current smoking. The Central California area exhibited the highest lifetime smoking prevalence (have you ever smoked?) at 42 percent and the highest overall current tobacco use rate (current smoking + smokeless) of 20 percent while the Los Angeles area exhibited the lowest rates (34 percent lifetime smoking; 14 percent overall current tobacco use).**
- **A majority of California youth report that they “definitely would not” smoke in the following year (76% of middle-schoolers and 60% of high-schoolers).**
- **Of those who do smoke currently, more than 30 percent express a desire to quit for good.**

Introduction

Tobacco use experimentation continues to affect a majority of high school students in the United States (MMWR, 2006) and one out of five becomes a regular user despite their general acknowledgment that long-term tobacco use has serious health and social consequences. Tobacco use onset is largely an adolescent phenomenon in the U.S. (Lee et al. 1993; Binns et al., 2009), American adults rarely initiate tobacco use after being smoke-free in adolescence. Hence, understanding tobacco use and its correlates among adolescents is important if lifetime tobacco use is to be effectively prevented.

This chapter reviews student-level descriptive data on tobacco use and its correlates, and it focuses on the following:

1. Current prevalence estimates for the most common measures of youth tobacco use obtained from the 2007-08 CSTS.
2. 2007-08 CSTS tobacco use prevalence estimates in light of trend information reported by the 1995-96, 1997-98, 1999-2001 administrations of the Independent Evaluation Student Survey (IESS), and the 2001-02, 2003-2004, and 2005-2006 CSTS.
3. A comparison of 2007-08 CSTS tobacco use prevalence estimates with the prevalence estimates obtained from the 2006 National Youth Tobacco Survey (NYTS), and the 2007-2008 California Attorney General's California Student Survey (CSS).
4. Prevalence estimates for intent not to use cigarettes, quitting smoking, and use of cessation programs from the 2007-08 CSTS.

The tobacco use prevalence questions in the CSTS were chosen to ensure comparability with tobacco use questions administered in the past to California students (three previous IESS surveys, three previous CSTS surveys, and the CSS survey), and to students nationally (2002 NYTS – Marshall et al., 2006; Eaton et al., 2008). These surveys used comparable methodology – they all relied on representative data from in-school youth via paper and pencil self-report instruments. The surveys differed, however, as to when they were administered. Most of the CSTS data were collected in the fall, whereas most of the NYTS and CSS data were collected in the spring of their respective years. Higher tobacco use prevalence estimates were observed in the NYTS but not in the CSS. Additionally, the CSS tobacco use questions were embedded in lists of questions about other drug use and alcohol use whereas the CSTS, IESS, and NYTS questions were limited to tobacco use behaviors.

Lifetime Cigarette Use

Lifetime cigarette use was assessed using the question, "Have you ever smoked cigarettes, even one or two puffs?" Table 2.1 shows the proportion of respondents who responded "yes" to this question. As has been generally true of previous surveys of adolescent tobacco use in the U.S., rates of lifetime use increase monotonically with increasing grade, overall, and within major ethnic groups. Boys reported higher rates of lifetime smoking than girls (37.9 percent vs. 34.0 percent, respectively, $p < 0.01$) (Table 2.2). When gender differences in lifetime rates were compared within grades, boys reported "ever smoking" at higher rates than girls in all grades except 6th, 8th, and 11th grades, where boys' and girls' rates were similar.

The observed rates reported in Table 2.1 are likely to be underestimates of lifetime use for all 16 to 18 year-olds, because adolescents in most states, including California, are permitted to drop out of school at age 16. Dropouts, obviously, would not have participated in the in-school CSTS survey. Other literature indicates much higher tobacco use rates among dropouts, compared to in-school youth of the same age (Pirie et al., 1988). Hence, all prevalence estimates derived from the data reported here should be recognized as applying only to in-school youth and not to youth who have dropped out of school.

Current Cigarette Use

Current cigarette use is the most commonly used measure of smoking prevalence. National tobacco use estimates (e.g., MMWR, 2006; Eaton et al., 2008) typically define "current cigarette use" among youth as smoking on one or more days during the past 30-days prior to the survey. The proportion of respondents who reported that they currently smoke increased monotonically from grade 6 through grade 12, ranging from 3.1 percent to 20.7 percent (Table 2.3). Observed differences by ethnicity and gender were generally consistent with ethnic and gender differences in prevalence of current adolescent smoking observed elsewhere (e.g., MMWR, 2006; CDC, 2008; Eaton et al., 2008). Latinos (12.9 percent) and African American respondents (10.9 percent) reported lower rates of current cigarette use than Whites (16.0 percent). Asian/ Pacific Islander respondents reported the lowest rates of current smoking (9.5 percent). Boys reported a

higher rate than girls (15.4 percent vs. 11.3 percent) (Table 2.4). No differences were found in rates of current smoking between boys and girls attending middle school. At high schools, boys reported higher rates of current smoking than girls in all grades except 9th grade, where their rates were similar.

Frequent Use of Cigarettes

Frequent use of cigarettes is one of the characteristics of tobacco addiction.

Respondents who reported smoking on 20 or more days during the past 30 days were defined as frequent users of cigarettes. Table 2.5 shows that less than two percent of California adolescents reported frequent smoking prior to high school entry. Higher levels of frequent smoking were particularly salient in grades 10 (3.0 percent), 11 (4.7 percent), and 12 (6.0 percent), especially for Caucasians (overall average was 5.1 percent). Hispanic students reported low prevalence rates of frequent smoking relative to all other major ethnic groups in grade twelve. In grade 12, 3.4 percent of Hispanic students reported frequent smoking while students from other major ethnic groups (Asian, African American, and White) reported frequent smoking prevalence rates that exceeded 7 percent. Just as was found for current cigarette use, gender differences were found in frequent smoking only among students in higher grade levels (grades 10-12). Boys reported a higher frequent use rate than girls (4.4 percent vs. 2.2 percent, respectively) (Table 2.6).

Lifetime Use of 100 Cigarettes or More

A convention has emerged in the field of youth tobacco use surveillance that a history of having smoked at least 100 cigarettes distinguishes youth who smoke just a few cigarettes ("experimenters"), presumably out of curiosity, from those youth who smoke enough cigarettes to become habitual smokers [Delnevo et al., 2004]. Table 2.7 illustrates that the prevalence of youth smokers who had smoked at least 100 cigarettes remained below two percent among respondents through grade eight and then accelerated to 10.0 percent by grade 12. Overall, 5.6 percent of respondents indicated that they had smoked at least 100 cigarettes.

In the higher grades, from 10th grade through 12th grade, Caucasian respondents reported a higher prevalence of having smoked at least 100 cigarettes than respondents associated with any other major ethnic group. By grade 12, 14.1 percent of Caucasian respondents reported having smoked at least 100 cigarettes, compared to a maximum of 10.2 percent for any other major ethnic group. Table 2.8 shows that boys and girls did not differ in the proportion who reported having smoked at least 100 cigarettes in grades six and seven. From grade eight through grade twelve, however, boys consistently reported a higher proportion who had smoked at least 100 cigarettes than girls (7.2 percent vs. 3.9 percent) ($p < 0.05$).

Use of Other Tobacco Products

Although cigarette smoking is the primary way that adolescents consume tobacco, they gain significant exposure to tobacco through use of smokeless tobacco, cigars, and specialty tobacco imports such as bidis or kreteks.

About ten percent of respondents (10.1 percent) reported ever using smokeless tobacco (chewing tobacco, snuff, or dip), and 27.2 percent reported having ever smoked cigars. About five percent of respondents reported that they had tried smoking bidis (5.2 percent) or kreteks (4.2 percent). White respondents reported higher rates of lifetime smokeless tobacco (13.0 percent), cigar (31.2 percent), and kretek use (8.0 percent), and African American students reported a higher rate of lifetime bidi use (7.0 percent).

Consistent with the patterns observed for current cigarette smoking, current cigar smoking, and current smokeless tobacco use tended to increase with increasing grade. The prevalence of current cigar use increased monotonically with increasing age, from 4.2 percent (6th grade) to 15.2 percent (12th grade). The prevalence of smokeless tobacco use increased monotonically with increasing age, from 1.5 percent (6th grade) to 5.3 percent (12th grade). The highest prevalence of current smokeless tobacco use by girls was 3.6 percent in grade 7; the range in prevalence rates for boys in the high school grades was 4.5 percent (9th grade) to 9.8 percent (12th grade). Girls reported a lower prevalence of current cigar use than boys for all grades except for sixth and seventh grades, where rates of use were similar between boys and girls. Consistent with past literature (e.g., CDC, 2001), girls were less likely than boys to report current

use of smokeless tobacco or cigars, and lifetime use of such tobacco products as smokeless tobacco, cigars, bidis, and kreteks.

Regional Differences in Tobacco Use

There is increasing interest in understanding the geographic variations in prevalence of tobacco use (Brown and Duncan, 2000). Tobacco use has been shown to vary by the urbanicity of a region, with rural areas reporting the highest rates of tobacco use (CDC, 2002). The CSTS survey design included stratification by twelve demographically distinct regions in California, with regions nine (rural Central Valley region of California) and ten (the twenty most northern, sparsely populated counties) being less urban than other regions. Seven of the most populous CSTS regions represented single counties (Alameda, Los Angeles, Orange, Riverside, San Bernardino, Santa Clara, and San Diego). The remaining five regions represented five to twenty counties each. Table 2.9 shows the prevalence rate for lifetime smoking, current smoking, and current smokeless tobacco use by California region.

For prevalence of lifetime smoking, an urban versus rural pattern was apparent. The mostly rural Central Valley Counties (region nine) reported the highest rate of lifetime smoking (42.2 percent) while heavily urbanized Los Angeles County reported the lowest rate (33.6 percent). For current cigarette smoking, Los Angeles County reported the lowest current use (10.9 percent) compared to all other regions.

An urban / rural contrast was more evident for lifetime cigar use. The two most urbanized, population-dense counties (Los Angeles and Alameda) showed low prevalence rates of lifetime use (23.5 percent and 20.9 percent, respectively) in contrast to region 9 (Central Valley counties), which showed higher rates of lifetime cigar use (36.1 percent).

Current smokeless tobacco use patterns paralleled the patterns observed for lifetime smoking. The highest rates occurred in the most inland, least urbanized regions, including the Northern Counties (6.8 percent) and the Sacramento area (5.4 percent). By contrast, the lowest rates occurred in the coastal regions, especially the urbanized areas, including Los Angeles (2.7 percent) and San Diego (2.6 percent).

Trends in Tobacco Use

Table 2.10 shows trends in lifetime and current tobacco use, using the IESS 1995-96, 1997-98, 1999-2000, CSTS 2001-02, 2003-04, and CSTS 2005-06 data. Curiously, lifetime cigarette smoking prevalence continued the decline observed since 1995 even though current smoking rates, while negligibly lower than corresponding 2005-2006 rates, were nonetheless higher for the 8th, 10th, and 12th grades relative to rates reported in 2003-2004. Lifetime cigar rates were the lowest recorded since 1995 for 10th graders, at 28.8 percent compared to 30.0 percent in 2005-2006. On the other hand, use of bidis was 6.0 percent for 10th graders and 6.7 percent for 12th graders. Overall, the generally decreasing trends for all forms of youth tobacco use observed since 1995 appear to have ended in 2003-2004, and use rates have fluctuated around a static level in 2005-06 and 2007-08.

Comparison of Concurrent In-school Surveys

The National Youth Tobacco Survey (NYTS) is a national random sample survey among in-school youth that was conducted in 2006 by the Centers for Disease Control and Prevention and that was specific to youth tobacco surveillance, using many of the same tobacco use items as were used in the CSTS. CSS is a survey on drug abuse conducted biennially by the California Attorney General in randomly selected California schools among students in grades seven, nine, and eleven. The eleventh administration of the CSS occurred concurrently with the administration of the CSTS 2007-08. The 2007 CSS included commonly asked questions about tobacco use, including questions about lifetime smoking, lifetime smokeless tobacco use, current cigarette smoking, frequent smoking, and current smokeless tobacco use. This chapter examines prevalence rates of tobacco use obtained in these surveys.

Table 2.11 shows that the CSTS rates on lifetime cigarette smoking among 7th, 9th, and 11th graders and smokeless tobacco use among 7th, 9th, and 11th grade students were slightly higher than those in the 2007-08 CSS but lower than national rates reported in the 2006 NYTS. For example, the lifetime smoking rates for 9th graders were 28.4% in the CSTS, 20.4% in the CSS, and 39.6% in the NYTS. Lifetime smoking rates for 11th graders were 42.4% in the CSTS, 33.6% in the CSS, and 51.3% in the NYTS. Ninety-

five percent confidence intervals are not reported for the CSS results, but the CSS estimates fall outside of the 95% confidence interval for the CSTS estimates. By contrast, current cigarette smoking rates in the CSTS were generally comparable to those in the CSS – 4.9% vs. 5.6 for 7th grade, 10.3% vs. 11.1% for 9th grade, and 16.2% vs. 17.4% for 11th grade, but lower than corresponding NYTS rates. The prevalence of seventh grade smokeless use was generally the same across the three surveys, but California smokeless use appeared to be lower than rates reported for CSS and NYTS 9th and 11th graders. (Table 2.12). Similar prevalence rates were observed for 9th and 11th grade frequent smoking as well, as presented in Table 2.13, but CSTS rates were higher than CSS rates for 7th grade. CSTS and CSS frequent smoking rates were consistently lower than corresponding NYTS rates. The investigators conclude that the CSTS and CSS surveys yielded generally comparable estimates for each of the tobacco use questions, with a trend towards slightly higher estimates on lifetime use and lower estimates on current use observed in the CSTS compared to the CSS. They also concluded that California rates were consistently lower than corresponding national rates.

By contrast, the CSTS rates for cigar use among middle school students but not high school students was higher than the corresponding NYTS prevalence rates. In the 2005-2006 IETP survey, CSTS and NYTS middle school cigar prevalence had been similar. This suggests that cigar use has increased disproportionately in California middle school students relative to other regions in the U.S. in the last two years.

Other more recently reported nationally representative adolescent tobacco use data were reported for the Monitoring the Future Survey (MTFS) (Johnston et al., 2008). Tobacco use prevalence estimates from this nationally representative survey are not exactly comparable to CSTS rates because the MTFS is a drug abuse survey, not a tobacco use survey, and because the data were obtained only from students in grades 8, 10, and 12. It is, nonetheless, clear when comparing the 2007-2008 CSTS prevalence estimates for lifetime and 30-day use with corresponding prevalence estimates from the 2007 and 2008 MTFS (Johnston et al., 2008) that the California rates and U.S. rates have now converged. California is no longer the national leader in minimizing youth tobacco use. More specifically, California's 8th and 12th graders now

report lifetime rates that exceed those reported nationally by the MTFS in 2007 and 2008. The 49.6 percent (95 percent CI: 46.1 – 53.2) of California's 12th graders who reported lifetime cigarette use is higher than the 44.7 percent reported nationally by the MTFS in 2008. The 38.9 percent (95 percent CI: 36.8 - 41.1) of California 10th graders who reported lifetime cigarette use is higher than the corresponding MTFS rate of 34.6 percent in 2007 and 31.7 percent in 2008. California 8th graders' lifetime rates of 25.1 percent (95 percent CI: 20.0 – 31.0) also exceed those of 8th graders nationally in 2008 (20.5%). California 8th, 10th, and 12th graders now report current (30-day) rates (8.8, 13.2, and 20.7 percent, respectively) that slightly exceed the corresponding rates for 8th, 10th, and 12th graders in the MTFS 2008 survey (6.8, 12.3, 20.4 percent, respectively). The overall impression that these numbers leave is that while the decline in U.S. rates is continuing, the California rates are fluctuating around a stable plateau. Because California youth tobacco use rates, historically, were consistently lower than national rates, the result of these trends has been a convergence of national and U.S. rates, with national rates projected to decrease more than California rates in the future.

Age of Smoking Initiation

Cigarette smoking during adolescence has been shown to be associated with a greater probability of concurrent and future substance use and abuse compared to adolescents who do not smoke (Kandel et al., 1997; Brown et al., 1996; Kandel & Yamaguchi, 1993). Research has shown that adolescents who start smoking at an earlier age are more likely to persist in smoking and become more dependent on nicotine than other youth populations. It has also been shown that early experimentation increases the likelihood of habitual smoking (USDHHS, 1998; USDHHS, 1994; Kandel et al., 1997).

Age of cigarette smoking initiation was measured in the CSTS by asking "How old were you when you smoked a whole cigarette for the first time?" Sixty-six percent of lifetime smokers reported that they started smoking a whole cigarette after age 13 (Table 2.14). Seventeen percent of lifetime smokers indicated that they started smoking when they were 10 years old or younger. Boys started smoking at an earlier age than girls did ($p < 0.05$). Forty percent of boys smoked a whole cigarette before age 13 compared with 28 percent of girls in this same age group. The pattern of smoking initiation differed across

ethnic groups when age of smoking initiation was examined across the major ethnic groups. More than two thirds of Caucasian smokers reported that they started smoking after age 13. By contrast, nearly one quarter (33.1 percent) of Asian/Pacific Islander and African American smokers started smoking when they were 10 years old or younger compared to 18 percent for Hispanic and 13 percent for Caucasian smokers, respectively. About 40 percent of Asian/Pacific Islander and African American adolescent smokers stated that they started smoking before age 13. Compared to results reported in the 2005-06 IETP report, Asian/Pacific Islander smokers are now starting to smoke at an earlier age than other major ethnic groups. This surprising finding contrasts with the historical literature, indicating a tendency for Asian/Pacific Islanders to start the smoking habit significantly later than Caucasians. (Trinidad et al., 2004) Inasmuch as early age of initiation is a risk factor for later in life addicted smoking, this change is concerning. (Everett et al., 1999).

Intent Not to Use Cigarettes

Intent not to use cigarettes in the near future and beliefs about refusing to use tobacco, if offered by a friend, are two protective factors relating to future tobacco use (Pierce et al., 1996). The CSTS assessed respondents' intent not to use by asking "Do you think you will smoke a cigarette at any time during the next year?" and "If one of your best friends offered you a cigarette, would you smoke it?" Response options were "Definitely yes", "Probably yes", "Probably not", and "Definitely not".

Seventy-six percent of middle and 59.8 percent of high school students responded that they "definitely would not" smoke a cigarette in the next year. As can be seen in Table 2.15, these numbers mirrored the responses to the question asking if they would smoke a cigarette if offered by their best friend (73.5 percent and 59.5 percent for middle and high school students, respectively, reported "definitely not"). Girls were slightly more likely to respond "definitely would not" smoke a cigarette in the next year compared to boys, both in middle and high school grades. Asian/ Pacific Islander students were more likely to respond "definitely would not" smoke a cigarette in the next year compared to all other ethnic groups but this difference was apparent only in middle school. Hispanic / Latino students were less likely to respond "definitely would not" smoke a cigarette in

the next year compared to all other ethnic groups in both the middle school and high school grades.

Desire to Quit and Quit Attempts

Previous research has found that adolescent smokers' desire to quit smoking cigarettes and their prior quit attempts are associated with success at quitting cigarette use in the future. Smokers with less desire to quit their habit have tended to perceive smoking as providing greater benefits (e.g., believed that smokers had more friends; smoking makes young people look cool) than current smokers with greater desire to quit, and thus were found to report more difficulty in quitting later (Friestad & Rise, 1998; Tyc, Hadley, & Allen, 2004). CSTS respondents who smoked were therefore asked if they wanted to quit smoking. Slightly less than a third of current smokers in each grade reported that they wanted to quit smoking (Table 2.16). The exceptions were 6th grade, where only 22.7 percent of smokers reported an interest in quitting, and 7th grade, where 37.2 percent of smokers reported that they wanted to quit. No consistent patterns emerged when rates were examined by grade and ethnicity except that African American smokers were less likely to report wanting to quit than other ethnic groups, which is inconsistent with recent national data (Eaton et al., 2008).

When asked if they thought they would be able to quit smoking cigarettes if they wanted to, 61.3 percent of current smokers in grades 6 through 12 responded "yes" (Table 2.17). Curiously, there was a trend towards more smokers in the higher grades reporting confidence that they could quit smoking than smokers in the lower grades even though recent national data suggest that success at quitting is higher in the lower grades (CDC, 2009).

Similar to those who wanted to quit smoking, 44.6 percent of lifetime smokers (Table 2.18) and 46.7 percent of current smokers (Table 2.19) had made at least one attempt to quit smoking cigarettes. Current male smokers reported a lower rate of quitting smoking at least once compared to female smokers (43.0 percent vs. 49.3 percent, respectively) ($p < 0.01$). No significant gender difference in previous quit attempts was observed among lifetime smokers.

Use of Cessation Resources

When asked about participating in cessation programs, 10.8 percent of lifetime smokers and 12.4 percent of current smokers responded that they had participated in a program to help them quit using tobacco, either at school or in their community (Table 2.20).

Fewer female lifetime smokers reported that they had participated in a program to help them quit using tobacco, compared to male lifetime smokers ($p < 0.01$). Male and female current smokers reported similar rates of participation in cessation programs. Lifetime and current smokers in sixth and seventh grades reported higher rates of cessation program participation than smokers in higher grades, despite the fact that cessation programs are more likely to be offered in high schools, not middle schools. Asian/Pacific Islander lifetime smokers and Hispanic current smokers reported higher rates of cessation program participation than corresponding smokers from other ethnic groups.

The California Tobacco Helpline (1 800 NO BUTTS) is a non-profit organization that provides free cessation services to California resident tobacco users who want to quit. It is operated by the University of California, San Diego and is funded by the California Department of Health Services through Prop. 99, the 1988 Tobacco Tax Health Protection Act. Use of the helpline by adolescent lifetime smokers was assessed in the CSTS. Overall, 4.7 percent of lifetime smokers and 5.5 percent of current smokers responded that they had called the helpline to help them quit using tobacco (Table 2.21). More male lifetime smokers than female reported having used the helpline (6.0 percent vs. 3.1 percent, $p < 0.05$). A marginally nonsignificant gender difference was also observed for current smokers ($p = 0.06$). The proportion of smokers calling the statewide helpline tended to decrease with increasing grade, from 15.9 percent of 6th grade current smokers to 4.0 percent of 12th grade smokers. African American lifetime and current smokers reported higher rates of having used the helpline than did smokers from other ethnic groups. African American current smokers were particularly likely (11.4%) to report using the California helpline compared to Hispanic / Latino adolescent smokers (4.8 percent) and White adolescent smokers (4.5 percent).

Methodological note.

All respondents to the 2003-2004 CSTS were recruited under "active informed consent" procedures that required a signature from the parents before the student was permitted to take part in the survey. A change in state law permitted three quarters of the respondents in the 2005-2006 CSTS and 82 percent in the 2007-2008 CSTS to be recruited under "passive informed consent" procedures, which permitted students to participate as long as the parent had not objected to the student's participation. The student response rate for the 2007-2008 CSTS was therefore higher than the corresponding rate in 2003-2004. Past research has indicated slightly higher cigarette smoking rates among potential respondents screened out by the active parental consent procedure who would have participated under the passive consent procedure (Anderman et al., 1995; Dent et al., 1993). Prevalence estimates obtained from respondents recruited under passive consent conditions were compared to prevalence estimates obtained from respondents recruited under active consent procedures. For most comparisons, no significant differences in tobacco use prevalence estimates were observed between students recruited using passive consent compared to students recruited using active consent procedures. Overall lifetime rates were slightly higher (37.6 percent; 95% CI: 36.0, 39.3) under passive consent than under active consent (29.0 percent; 95% CI: 24.6, 33.7). Overall current smoking use rates were not significantly different between the two types of informed consent conditions. There were no grade-specific differences for either lifetime smoking rates or for current smoking rates. We conclude that differences in prevalence rates over time attributable to changes in the proportion of students recruited under passive consent conditions are negligible for grade-specific comparisons.

Conclusion

After years of decline, the prevalence of current tobacco use (cigarettes, smokeless, cigar use) among California youth has plateaued even as U.S. youth prevalence continues to decline. The result is that the historically lower youth tobacco use rates in California have now converged with corresponding national rates. If current trends continue, California youth tobacco use rates will exceed corresponding national youth rates.

The 2007-08 CSTS results indicated a slight continuing trend towards reduced adolescent tobacco use experimentation among California in-school youth but showed negligible improvement in the prevalence of regular tobacco use, smokeless tobacco use, and cigar use by students in high school grades. All common tobacco use measures observed in the 2007-08 CSTS were cross-validated in an independent drug abuse survey (CSS) conducted among students in grades seven, nine, and eleven from the same California population during approximately the same time period. The prevalence estimates from both surveys were generally more similar than different, increasing our confidence that they accurately reflect current tobacco use rates among California's in-school youth.

Other studies have shown some student smokers to be averse to using school-based cessation resources but open to using existing cessation resources in the community (Leatherdale, 2006). Rates of cessation by student smokers may increase if increased efforts are made to match student smokers with existing smoking cessation resources in the community.

2007- 08 CSTS Student level data (weighting method used in 2005-06 IETP Final Report)

TABLES

Table 2.1 Lifetime Cigarette Use by Grade and Ethnicity

Grade	Overall	Asian/PI	African American	Hispanic/ Latino(a)	Caucasian
6th	10.2% [7.8, 13.3]	12.2% [6.0, 23.1]	16.7% [9.2, 28.5]	12.6% [9.1, 17.1]	2.6% [0.9, 6.9]
7th	17.2% [14.2, 20.6]	11.8% [6.9, 19.6]	25.3% [14.7, 39.9]	20.6% [16.6, 25.2]	9.5% [5.5, 15.8]
8th	25.1% [20.0, 31.0]	22.8% [15.3, 32.6]	30.5% [21.9, 40.6]	29.0% [24.0, 34.6]	18.6% [10.2, 31.4]
9th	28.4% [26.1, 30.8]	20.4% [15.4, 26.4]	26.6% [19.2, 35.5]	33.3% [30.8, 35.9]	23.8% [20.0, 28.1]
10th	38.2% [35.9, 40.5]	24.6% [19.5, 30.6]	40.2% [34.2, 46.6]	43.9% [41.3, 46.6]	35.5% [31.9, 39.3]
11th	42.4% [40.2, 44.6]	27.9% [22.8, 33.6]	31.8% [26.1, 38.1]	48.4% [45.7, 51.0]	43.2% [40.3, 46.2]
12th	49.0% [46.4, 51.6]	39.0% [33.4, 44.8]	44.7% [37.8, 51.8]	52.6% [49.5, 55.8]	49.0% [45.3, 52.7]
Total	35.9% [34.4, 37.5]	26.4% [23.1, 30.0]	33.7% [30.3, 37.4]	39.9% [38.4, 41.4]	34.7% [31.8, 37.7]

Note: Brackets contain the 95 percent confidence intervals.

Table 2.2 Lifetime Cigarette Use by Grade and Gender

Grade	Overall	Female	Male
6th	10.2% [7.8, 13.3]	9.9% [6.6, 14.4]	10.6% [7.7, 14.4]
7th	17.2% [14.2, 20.6]	14.0% [11.0, 17.7]	20.2% [16.4, 24.5]
8th	25.1% [20.0, 31.0]	23.6% [17.9, 30.4]	26.5% [20.7, 33.4]
9th	28.4% [26.1, 30.8]	25.9% [23.6, 28.3]	30.9% [27.8, 34.0]
10th	38.2% [35.9, 40.5]	35.9% [33.2, 38.7]	40.4% [37.6, 43.1]
11th	42.4% [40.2, 44.6]	41.2% [38.3, 44.2]	43.6% [41.1, 46.1]
12th	49.0% [46.4, 51.6]	46.7% [43.8, 49.6]	51.4% [48.5, 54.4]
Total	35.9% [34.4, 37.5]	34.0% [32.2, 35.7]	37.8% [36.3, 39.4]

Note: Brackets contain the 95 percent confidence intervals.

Table 2.3 Current Cigarette Use by Grade and Ethnicity

Grade	Overall	Asian/PI	African American	Hispanic/ Latino(a)	Caucasian
6th	3.1% [1.9, 5.0]	3.7% [1.1, 11.9]	4.1% [1.0, 15.2]	3.5% [2.2, 5.6]	1.7% [0.4, 6.6]
7th	4.9% [3.3, 7.3]	1.5% [0.5, 5.0]	4.8% [2.0, 11.0]	7.0% [5.0, 9.8]	2.6% [1.1, 6.2]
8th	8.8% [6.5, 11.9]	3.8% [1.7, 8.2]	7.4% [3.6, 14.7]	10.2% [7.0, 14.6]	8.3% [4.4, 15.3]
9th	10.3% [9.0, 11.6]	5.9% [4.0, 8.6]	9.3% [5.5, 15.2]	11.2% [9.5, 13.1]	10.0% [8.0, 12.4]
10th	13.2% [11.9, 14.7]	9.4% [6.3, 13.6]	10.2% [6.7, 15.4]	13.8% [11.7, 16.2]	14.7% [12.6, 17.2]
11th	16.2% [14.6, 17.8]	9.3% [6.5, 13.1]	8.9% [5.9, 13.2]	14.9% [13.1, 16.8]	21.0% [18.7, 23.6]
12th	20.8% [19.1, 22.7]	16.7% [12.9, 21.3]	18.9% [13.4, 26.0]	19.5% [17.3, 21.8]	23.4% [20.9, 26.1]
Total	13.5% [12.7, 14.3]	9.3% [7.6, 11.3]	10.6% [8.7, 12.9]	13.2% [12.3, 14.1]	15.7% [14.3, 17.3]

Note: Brackets contain the 95 percent confidence intervals.

Table 2.4 Current Cigarette Use by Grade and Gender

Grade	Overall	Female	Male
6th	3.1% [1.9, 5.0]	3.2% [1.7, 5.9]	3.0% [1.7, 5.1]
7th	4.9% [3.3, 7.3]	3.9% [2.4, 6.4]	5.9% [4.0, 8.7]
8th	8.8% [6.5, 11.9]	7.5% [5.4, 10.4]	10.1% [6.6, 15.1]
9th	10.3% [9.0, 11.6]	8.6% [6.9, 10.6]	11.8% [10.0, 13.9]
10th	13.2% [11.9, 14.7]	11.1% [9.4, 13.0]	15.3% [13.4, 17.5]
11th	16.2% [14.6, 17.8]	13.2% [11.5, 15.0]	19.1% [17.0, 21.5]
12th	20.8% [19.1, 22.7]	18.4% [16.6, 20.3]	23.3% [20.8, 25.9]
Total	13.5% [12.7, 14.3]	11.5% [10.6, 12.3]	15.5% [14.5, 16.5]

Note: Brackets contain the 95 percent confidence intervals.

Table 2.5 Frequent Cigarette Use (20+ days), by Grade and Ethnicity

Grade	Overall	Asian/PI	African American	Latino/a	Caucasian
6th	0.3% [0.1, 1.2]	0.0% [—]	0.0% [—]	0.7% [0.2, 2.3]	0.0% [—]
7th	1.2% [0.7, 2.3]	0.0% [—]	0.9% [0.1, 6.8]	1.8% [0.9, 3.5]	1.0% [0.3, 3.5]
8th	1.2% [0.7, 2.2]	1.7% [0.5, 6.0]	3.9% [1.6, 9.4]	0.7% [0.3, 1.8]	1.0% [0.3, 4.2]
9th	1.8% [1.4, 2.4]	1.5% [0.8, 2.7]	3.7% [1.5, 9.1]	1.3% [0.8, 1.9]	2.4% [1.4, 4.0]
10th	2.9% [2.2, 3.7]	2.9% [1.1, 7.1]	3.1% [1.1, 8.2]	2.0% [1.3, 3.0]	4.0% [3.0, 5.3]
11th	4.6% [3.8, 5.5]	3.9% [2.6, 5.7]	3.3% [1.6, 6.5]	2.9% [2.2, 3.9]	7.1% [5.6, 9.1]
12th	5.9% [5.1, 6.9]	5.9% [3.6, 9.5]	6.6% [3.5, 12.2]	3.6% [2.6, 5.0]	8.1% [6.4, 10.2]
Total	3.3% [2.9, 3.7]	3.1% [2.3, 4.3]	3.7% [2.5, 5.6]	2.1% [1.8, 2.4]	4.8% [4.1, 5.7]

Note: Brackets contain the 95 percent confidence intervals.

Table 2.6 Frequent cigarette use (20+ days) by Grade and Gender

Grade	Overall	Female	Male
6th	0.3% [0.1, 1.2]	0.1% [0.0, 0.8]	0.6% [0.1, 2.2]
7th	1.2% [0.7, 2.3]	0.9% [0.4, 2.1]	1.6% [0.7, 3.2]
8th	1.2% [0.7, 2.2]	0.8% [0.3, 2.0]	1.7% [0.8, 3.5]
9th	1.8% [1.4, 2.4]	1.3% [0.8, 2.2]	2.3% [1.7, 3.2]
10th	2.9% [2.2, 3.7]	1.6% [1.1, 2.4]	4.1% [2.9, 5.6]
11th	4.6% [3.8, 5.5]	2.8% [2.1, 3.7]	6.4% [5.1, 7.9]
12th	5.9% [5.1, 6.9]	4.5% [3.4, 5.8]	7.4% [5.9, 9.1]
Total	3.3% [2.9, 3.7]	2.2% [1.8, 2.7]	4.3% [3.8, 4.9]

Note: Brackets contain the 95 percent confidence intervals.

Table 2.7 Lifetime Use of 100 Cigarettes or More by Ethnicity

Grade	Overall	Asian/PI	African American	Hispanic/ Latino(a)	Caucasian
6th	0.5% [0.1, 2.8]	0.0% [—]	0.0% [—]	1.0% [0.2, 5.2]	0.0% [—]
7th	1.1% [0.5, 2.0]	0.0% [—]	0.9% [0.1, 6.8]	1.5% [0.7, 3.2]	0.7% [0.1, 3.4]
8th	1.2% [0.6, 2.4]	1.0% [0.2, 4.1]	1.4% [0.2, 11.0]	0.7% [0.3, 1.7]	2.0% [0.8, 4.8]
9th	3.0% [2.4, 3.8]	2.6% [1.4, 4.9]	4.3% [1.9, 9.6]	2.3% [1.8, 3.1]	3.8% [2.5, 5.9]
10th	5.7% [4.7, 6.7]	4.9% [2.6, 9.0]	4.9% [2.5, 9.6]	4.1% [3.0, 5.7]	8.1% [6.5, 10.1]
11th	7.5% [6.4, 8.8]	5.8% [3.8, 8.9]	3.8% [2.0, 7.2]	4.9% [3.9, 6.0]	11.8% [9.7, 14.2]
12th	9.8% [8.6, 11.2]	8.6% [6.0, 12.2]	7.5% [3.8, 14.4]	7.0% [5.5, 8.1]	13.4% [10.9, 16.5]
Total	5.5% [5.0, 6.1]	4.8% [3.7, 6.3]	4.4% [3.1, 6.4]	3.7% [3.3, 4.2]	8.3% [7.1, 9.6]

Note: Brackets contain the 95 percent confidence intervals.

Table 2.8 Lifetime Use of 100 Cigarettes or More by Grade and by Gender

Grade	Overall	Female	Male
6th	0.5% [0.1, 2.8]	0.0% [—]	1.0% [0.2, 5.3]
7th	1.1% [0.5, 2.0]	0.6% [0.2, 1.9]	1.5% [0.7, 3.1]
8th	1.2% [0.6, 2.4]	0.5% [0.2, 1.3]	2.0% [1.0, 4.1]
9th	3.0% [2.4, 3.8]	2.1% [1.4, 3.1]	3.9% [2.9, 5.1]
10th	5.7% [4.7, 6.7]	3.6% [2.6, 4.9]	7.7% [6.4, 9.2]
11th	7.5% [6.4, 8.8]	4.8% [3.8, 6.1]	10.1% [8.6, 11.8]
12th	9.8% [8.6, 11.2]	7.7% [6.5, 9.2]	12.0% [9.9, 14.4]
Total	5.5% [5.0, 6.1]	3.8% [3.3, 4.4]	7.2% [6.5, 7.9]

Note: Brackets contain the 95 percent confidence interval.

Table 2.9 Lifetime, Current Cigarette Smoking, and Current Smokeless Tobacco Use by Region

Region/County or Area	Lifetime Cigarette Smoking	Current Cigarette Smoking	Current Smokeless Tobacco Use
1/Los Angeles	31.8% [28.3, 35.6]	10.3% [8.6, 12.4]	2.6% [1.9, 3.6]
2/San Diego	35.9% [31.4, 40.6]	13.4% [11.5, 15.6]	2.8% [2.1, 3.6]
3/Orange	36.1% [32.6, 39.8]	14.4% [12.2, 16.9]	3.8% [2.6, 5.6]
4/Santa Clara	33.2% [26.5, 40.6]	12.5% [8.4, 18.4]	3.5% [2.2, 5.5]
5/San Bernardino	38.2% [33.5, 43.2]	15.1% [13.3, 17.1]	3.6% [2.8, 4.7]
6/Riverside	36.9% [33.1, 40.8]	12.2% [10.2, 14.6]	3.1% [2.5, 3.9]
7/Alameda	29.1% [20.7, 39.3]	12.8% [8.9, 18.1]	4.0% [2.9, 5.5]
8/Bay Area Counties	34.2% [24.2, 45.8]	13.6% [8.7, 20.5]	3.5% [2.8, 4.2]
9/Central Valley Counties	42.7% [38.0, 47.6]	16.0% [13.2, 19.1]	5.0% [3.9, 6.3]
10/Northern Counties	39.3% [34.7, 44.2]	14.7% [12.1, 17.7]	6.5% [4.3, 9.7]
11/Sacramento Area Counties	39.0% [32.3, 46.0]	15.0% [12.7, 17.7]	6.3% [4.0, 9.6]
12/Central Coasts Counties	34.5% [27.8, 41.8]	13.4% [11.2, 16.1]	4.4% [2.6, 7.2]
Overall	35.9% [34.4, 37.5]	13.5% [12.7, 14.3]	4.0% [3.5, 4.4]

Note: Brackets contain the 95 percent confidence intervals.

Table 2.10 Trends in Tobacco Use

	Cigarette		Smokeless Tobacco		Cigar		Bidi
	Lifetime	Current	Lifetime	Current	Lifetime	Current	Lifetime
8th Grade							
IESS 1995	45.3%	16.9%	5.9%	3.1%	27.7%	n/a	n/a
IESS 1997	47.9%	17.1%	8.0%	4.2%	29.2%	10.8%	n/a
IESS 1999	37.2%	11.7%	6.1%	3.0%	20.0%	6.2%	n/a
CSTS 2001-02	32.5%	6.4%	9.6%	2.4%	20.5%	5.4%	4.2%
CSTS 2003-04	26.4%	6.6%	6.8%	2.5%	19.1%	6.6%	4.7%
CSTS 2005-06	23.4%	9.3%	7.9%	3.7%	21.1%	8.7%	4.9%
CSTS 2007-08	25.1%**	8.8%**	8.6%**	3.1%	19.6%**	9.3%	5.0%
10th Grade							
IESS 1995	62.9%	27.8%	9.7%	3.5%	38.7%	n/a	n/a
IESS 1997	58.9%	21.8%	9.3%	2.9%	37.4%	13.2%	n/a
IESS 1999	54.1%	19.5%	8.3%	2.9%	30.6%	9.0%	13.9%
CSTS 2001-02	50.1%	14.8%	11.9%	3.6%	31.4%	9.8%	9.6%
CSTS 2003-04	43.0%	13.1%	10.4%	3.5%	29.7%	11.4%	7.8%
CSTS 2005-06	41.0%	14.9%	10.7%	4.6%	30.0%	12.0%	5.5%
CSTS 2007-08	38.2%**	13.2%**	9.9%	3.4%	28.5%**	10.6%**	5.5%**
12th Grade							
IESS 1995	n/a	n/a	n/a	n/a	n/a	n/a	n/a
IESS 1997	n/a	n/a	n/a	n/a	n/a	n/a	n/a
IESS 1999	64.7%	24.8%	12.1%	3.5%	39.2%	10.4%	26.3%
CSTS 2001-02	62.3%	22.9%	15.7%	3.5%	45.3%	13.9%	17.7%
CSTS 2003-04	52.0%	17.1%	10.7%	3.4%	36.7%	12.8%	8.2%
CSTS 2005-06	50.3%	19.7%	12.0%	5.0%	37.6%	15.7%	5.9%
CSTS 2007-08	49.0%**	20.8%**	12.7%	5.3%**	36.6%*	15.2%**	5.7%**

Notes: IESS 1995-1999 are the Independent Evaluation

CSTS 2001-02, 2003-04, 2005-06, and 2007-08 are the California Student Tobacco Survey

n/a = question not asked of respondent type

* $0.01 \leq p < 0.05$; ** $p < 0.01$

Within each grade group for each outcome variable, significance tests are 1995 vs. 2007; except where 1995-1999 data were unavailable, they are first available year vs. 2007.

Table 2.11 Comparison of Surveys: Lifetime Tobacco Use

Grade	Cigarette			Cigar			Smokeless Tobacco		
	CSTS ¹ 2007-08	CSS ² 2007-08	NYTS ³ 2006	CSTS ¹ 2007-08	CSS ² 2007-08	NYTS ³ 2006	CSTS ¹ 2007-08	CSS ² 2007-08	NYTS ³ 2006
6 th	10.2% [7.8, 13.3]	—	14.9% [12.1, 18.3]	9.1% [7.2, 11.5]	—	7.0% [5.8, 8.4]	5.3% [3.5, 7.8]	—	4.6% [3.6, 5.9]
7 th	17.2% [14.2, 20.6]	14.9%	22.0% [19.1, 25.2]	14.0% [10.7, 18.2]	—	10.7% [9.1, 12.6]	5.8% [4.2, 8.0]	4.1%	6.6% [5.2, 8.3]
8 th	25.1% [20.0, 31.0]	—	30.8% [27.0, 34.9]	19.6% [16.6, 22.9]	—	16.2% [14.0, 18.7]	8.6% [6.8, 10.9]	—	8.1% [6.3, 10.4]
9 th	28.4% [26.1, 30.8]	20.4%	39.6% [36.8, 42.4]	21.3% [19.6, 23.0]	—	23.1% [21.1, 25.2]	9.0% [7.8, 10.4]	6.1%	11.0% [8.9, 13.5]
10 th	38.2% [35.9, 40.5]	—	47.0% [43.4, 50.7]	28.5% [26.5, 30.6]	—	29.5% [27.0, 32.2]	9.9% [8.2, 11.9]	—	15.8% [13.7, 18.2]
11 th	42.4% [40.2, 44.6]	33.6%	51.3% [47.0, 55.7]	32.5% [30.3, 34.9]	—	33.1% [29.9, 36.6]	11.5% [10.2, 13.0]	10.1%	13.9% [11.6, 16.6]
12 th	49.0% [46.4, 51.6]	—	57.1% [53.0, 61.1]	36.6% [34.2, 39.1]	—	38.5% [35.1, 41.9]	12.7% [11.1, 14.4]	—	17.0% [13.8, 20.9]
Middle School	18.5% [15.3, 22.2]	—	22.4% [19.8, 25.2]	14.9% [12.5, 17.8]	—	11.2% [9.8, 12.8]	6.8% [5.4, 8.5]	—	6.4% [5.1, 8.0]
High School	38.9% [37.4, 40.3]	—	48.0% [45.3, 50.8]	29.1% [27.5, 30.8]	—	30.4% [28.5, 32.4]	10.7% [9.6, 11.9]	—	14.2% [12.4, 16.3]

Notes: Brackets contain the 95 percent confidence intervals.

¹ California Student Tobacco Survey

² California Attorney General's CA Student Survey, designed to measure reported drug use by in-school students, including tobacco. . For 9th and 11th grade lifetime cigarette smoking, the question was: “*During your life, how many times have you used or tried the following substances without a doctor's order? - A whole cigarette?*” Answer options: 0 times, 1 time, 2 times, 3 times, 4-6 times, 7 or more times. For 7th graders, the lifetime cigarette question asked about having taken at least a puff.

³ National Youth Tobacco Survey, conducted by the Centers for Disease Control and Prevention in 2006.

Table 2.12 Comparison of Surveys: Current Tobacco Use

Grade	Cigarette			Cigar			Smokeless Tobacco		
	CSTS ¹	CSS ²	NYTS ³	CSTS ¹	CSS ²	NYTS ³	CSTS ¹	CSS ²	NYTS ³
	2007-08	2007-08	2006	2007-08	2007-08	2006	2007-08	2007-08	2006
6th	3.1%	—	3.4%	4.2%	—	2.9%	1.5%	—	2.1%
	[1.9, 5.0]		[2.8, 4.2]	[2.5, 7.0]		[2.3, 3.6]	[0.8, 2.9]		[1.6, 2.8]
7th	4.9%	5.6%	6.0%	5.6%	—	3.2%	3.3%	2.8%	2.6%
	[3.3, 7.3]		[4.6, 7.7]	[3.8, 8.1]		[2.5, 4.1]	[2.1, 5.1]		[1.8, 3.8]
8th	8.8%	—	9.8%	9.3%	—	5.8%	3.1%	—	3.2%
	[6.5, 11.9]		[7.9, 12.1]	[7.1, 11.9]		[4.9, 6.9]	[2.1, 4.5]		[2.4, 4.3]
9th	10.3%	11.1%	14.5%	8.9%	—	9.1%	3.5%	5.3%	5.1%
	[9.0, 11.6]		[12.9, 16.3]	[7.6, 10.3]		[8.0, 10.3]	[2.8, 4.4]		[3.8, 6.9]
10th	13.2%	—	20.0%	10.6%	—	12.4%	3.4%	—	7.1%
	[11.9, 14.7]		[17.4, 22.9]	[9.6, 11.7]		[10.9, 14.0]	[2.5, 4.5]		[5.9, 8.5]
11th	16.2%	17.4%	21.4%	12.7%	—	12.2%	4.8%	6.3%	5.7%
	[14.6, 17.8]		[18.8, 24.3]	[11.2, 14.3]		[10.5, 14.1]	[4.0, 5.7]		[4.6, 7.1]
12th	20.8%	—	24.7%	15.2%	—	14.2%	5.3%	—	6.6%
	[19.1, 22.7]		[21.5, 28.1]	[13.9, 16.6]		[12.5, 16.1]	[4.3, 6.4]		[5.0, 8.8]
Middle School	6.0%	—	6.3%	6.6%	—	4.0%	2.8%	—	2.6%
	[4.4, 8.0]		[5.2, 7.7]	[5.2, 8.5]		[3.4, 4.6]	[2.1, 3.6]		[2.1, 3.3]
High School	14.6%	—	19.8%	11.5%	—	11.8%	4.2%	—	6.1%
	[13.6, 15.7]		[18.1, 21.5]	[10.8, 12.3]		[11.0, 12.6]	[3.7, 4.7]		[5.1, 7.2]

Notes: Brackets contain the 95 percent confidence intervals.

¹ California Student Tobacco Survey

² California Attorney General's CA Student Survey, designed to measure reported drug use by in-school students, including tobacco.

³ National Youth Tobacco Survey, conducted by the Centers for Disease Control and Prevention in 2006.

Table 2.13 Comparison of Surveys: Frequent Cigarette Use (20+ days)

Grade	CSTS¹ 2007-08	CSS² 2007-08	NYTS³ 2006
6th	0.3% [0.1, 1.2]	—	0.9% [0.6, 1.4]
7th	1.2% [0.7, 2.3]	0.4%	1.1% [0.7, 1.8]
8th	1.2% [0.7, 2.2]	—	2.9% [2.1, 3.8]
9th	1.8% [1.4, 2.4]	1.6%	4.6% [3.7, 5.7]
10th	2.9% [2.2, 3.7]	—	8.4% [7.0, 10.0]
11th	4.6% [3.8, 5.5]	4.2%	10.2% [8.5, 12.1]
12th	5.9% [5.1, 6.9]	—	11.5% [9.5, 13.8]
Middle School	1.0% [0.7, 1.6]	—	1.6% [1.2, 2.1]
High School	3.7% [3.0, 4.4]	—	8.4% [7.4, 9.5]

Notes: Brackets contain the 95 percent confidence intervals.

¹ California Student Tobacco Survey

² California Attorney General's CA Student Survey, designed to measure reported drug use by in-school students, including tobacco.

³ National Youth Tobacco Survey, conducted by the Centers for Disease Control and Prevention in 2006.

Table 2.14 Age of Cigarette Smoking Initiation among Lifetime Smokers

	10 Years old or Younger	11 or 12 Years Old	13 or 14 Years Old	15 Years Old or Older
<u>Overall</u>	16.6% [15.5, 17.8]	16.6% [15.4, 17.8]	33.5% [31.9, 35.2]	33.3% [31.4, 35.3]
<u>Gender</u>				
Female	12.0% [10.4, 13.7]	15.3% [13.8, 16.9]	37.2% [34.5, 39.9]	35.5% [32.9, 38.2]
Male	20.4% [18.8, 22.0]	17.6% [15.8, 19.5]	30.5% [28.7, 32.4]	31.6% [29.5, 33.7]
<u>Ethnicity</u>				
Asian/PI	23.2% [18.6, 28.6]	17.6% [13.6, 22.5]	27.5% [23.6, 31.8]	31.7% [26.7, 37.2]
African American	25.3% [19.2, 32.7]	16.9% [11.5, 24.2]	31.9% [24.4, 40.5]	25.9% [20.6, 32.0]
Hispanic/Latino(a)	17.6% [16.0, 19.4]	19.1% [17.2, 21.1]	34.3% [32.1, 36.5]	29.1% [26.8, 31.5]
Caucasian	11.6% [9.8, 13.7]	13.0% [11.2, 15.1]	34.4% [31.7, 37.3]	40.9% [37.8, 44.1]

Note: Brackets contain the 95 percent confidence intervals.

Table 2.15 Intent Not to Smoke

	Do you think you will smoke a cigarette at any time during the next year? (% Responding “Definitely Not”)	If one of your best friends offered you a cigarette, would you smoke it? (% Responding “Definitely Not”)
Middle School		
Overall	76.3% [71.8, 80.3]	73.5% [68.8, 77.6]
Female	77.4% [72.2, 81.8]	74.1% [68.5, 78.9]
Male	75.2% [70.4, 79.5]	72.9% [68.2, 77.1]
Asian/PI	86.1% [79.1, 91.0]	81.6% [76.0, 86.2]
African American	75.2% [68.1, 81.1]	74.3% [66.4, 81.0]
Hispanic/Latino(a)	70.7% [67.0, 74.2]	67.5% [63.3, 71.4]
Caucasian	83.1% [75.2, 88.8]	81.2% [74.5, 86.5]
High School		
Overall	60.0% [58.8, 61.3]	59.9% [58.7, 61.1]
Female	62.4% [60.8, 64.1]	62.1% [60.4, 63.6]
Male	57.7% [56.3, 59.0]	57.8% [56.4, 59.2]
Asian/PI	71.2% [68.1, 74.1]	69.8% [66.5, 72.9]
African American	70.6% [65.9, 74.9]	69.3% [66.1, 72.3]
Hispanic/Latino(a)	56.3% [54.8, 57.8]	55.9% [54.2, 57.5]
Caucasian	59.2% [57.0, 61.3]	59.8% [57.6, 62.0]

Note: Brackets contain the 95 percent confidence intervals.

Table 2.16 Percent of Current Smokers Reporting Desire to Stop Smoking

Grade	Overall	Asian/PI	African American	Hispanic/ Latino(a)	Caucasian
6th	21.6% [8.1, 46.4]	44.2% [4.4, 93.2]	0.0% [—]	21.9% [7.5, 49.4]	22.9% [8.0, 50.5]
7th	37.2% [26.6, 49.2]	33.1% [4.0, 85.3]	22.1% [2.9, 73.1]	38.8% [26.2, 53.2]	35.4% [8.7, 75.8]
8th	28.3% [21.9, 35.7]	0.0% [—]	33.7% [7.7, 75.6]	33.3% [26.3, 41.2]	28.0% [13.8, 48.5]
9th	30.6% [25.8, 35.8]	27.1% [16.0, 42.1]	7.9% [2.9, 19.6]	35.2% [27.6, 43.7]	28.1% [20.4, 37.3]
10th	29.6% [26.3, 33.1]	25.0% [15.0, 38.5]	19.3% [8.2, 38.9]	29.4% [24.4, 34.9]	32.4% [25.4, 40.3]
11th	29.8% [26.4, 33.4]	31.0% [20.2, 44.4]	24.0% [11.3, 44.0]	30.3% [24.9, 36.3]	30.7% [25.0, 37.1]
12th	32.4% [28.7, 36.3]	39.2% [28.9, 50.5]	21.4% [10.6, 38.4]	30.0% [25.5, 34.9]	34.9% [29.4, 40.8]
Total	30.6% [28.7, 32.7]	31.7% [26.4, 37.6]	18.7% [13.3, 25.6]	31.4% [28.5, 34.4]	32.0% [28.2, 36.0]

Note: Brackets contain the 95 percent confidence intervals.

Table 2.17 Percent of Current Smokers Reporting That They Would be Able To Quit Smoking Cigarettes If They Wanted To

Grade	Overall	Asian/PI	African American	Hispanic/Latino(a)	Caucasian
6th	37.9% [21.6, 57.4]	0.0% [—]	70.3% [12.1, 97.6]	42.7% [20.2, 68.6]	22.9% [8.0, 50.5]
7th	45.7% [33.9, 58.0]	67.7% [15.1, 96.1]	35.4% [7.7, 78.1]	47.9% [34.2, 62.0]	29.9% [11.1, 59.4]
8th	51.0% [39.9, 62.0]	49.6% [12.8, 86.9]	19.4% [2.5, 69.2]	57.2% [42.2, 71.1]	47.9% [27.6, 68.9]
9th	57.4% [51.3, 63.3]	59.4% [37.5, 78.1]	50.9% [33.7, 67.9]	56.4% [47.6, 64.8]	62.0% [51.2, 71.7]
10th	64.2% [59.3, 68.4]	65.6% [48.3, 79.6]	48.9% [27.4, 70.9]	63.1% [56.5, 69.3]	67.5% [60.1, 74.1]
11th	64.1% [60.0, 67.9]	55.1% [40.3, 69.1]	64.8% [40.5, 83.3]	64.1% [58.5, 69.3]	65.8% [59.2, 72.0]
12th	62.1% [58.3, 65.9]	60.2% [47.6, 71.5]	60.6% [46.5, 73.0]	63.2% [57.7, 68.4]	62.2% [55.5, 68.5]
Total	61.3% [59.2, 63.4]	59.3% [51.4, 66.8]	54.6% [46.0, 62.9]	60.9% [58.0, 63.8]	63.7% [60.2, 67.1]

Note: Brackets contain the 95 percent confidence intervals.

Table 2.18 Number of Quit Attempts Among Self-reported Lifetime Smokers, by Gender

	Overall	Female	Male
None	55.4% [53.4, 57.4]	56.4% [54.4, 58.5]	54.5% [51.6, 57.3]
Once	25.5% [24.0, 27.1]	24.7% [22.8, 26.7]	26.2% [23.9, 28.6]
Twice	8.8% [8.0, 9.7]	8.6% [7.5, 9.9]	9.0% [7.8, 10.3]
3-5 times	7.0% [6.2, 7.8]	7.5% [6.5, 8.6]	6.6% [5.4, 7.9]
6-9 times	1.0% [0.7, 1.5]	1.1% [0.7, 1.8]	1.0% [0.6, 1.4]
10 or more times	2.3% [1.8, 3.0]	1.7% [1.2, 2.4]	2.8% [2.1, 3.8]

Note: Brackets contain the 95 percent confidence intervals.

Table 2.19 Number of Quit Attempts Among Self-reported Current Smokers, by Gender

	Overall	Female	Male
None	54.7%	51.2%	57.2%
	[52.1, 57.2]	[48.1, 54.5]	[53.8, 60.5]
Once	19.1%	20.1%	18.3%
	[17.2, 21.1]	[17.4, 23.1]	[16.0, 20.9]
Twice	11.4%	11.8%	11.1%
	[10.1, 12.9]	[9.9, 14.0]	[9.5, 13.0]
3-5 times	10.2%	11.9%	8.9%
	[8.9, 11.7]	[9.9, 14.2]	[7.1, 11.2]
6-9 times	1.4%	1.8%	1.1%
	[0.9, 2.2]	[1.0, 3.2]	[0.7, 1.9]
10 or more times	3.2%	3.1%	3.3%
	[2.5, 4.2]	[2.2, 4.5]	[2.4, 4.5]

Note: Brackets contain the 95 percent confidence intervals.

Table 2.20 Percent of Students Reporting Having Ever Participated in A Program to Help Them Quit Using Tobacco

	Lifetime Smokers (%)	Current Smokers (%)
Overall	10.5% [9.4, 11.8]	11.9% [10.4, 13.6]
<u>Gender</u>		
Female	8.4% [6.8, 10.4]	10.7% [8.3, 13.7]
Male	12.1% [10.4, 14.1]	12.8% [10.8, 15.2]
<u>Grade</u>		
6th	37.7% [20.2, 59.0]	22.7% [6.7, 54.4]
7th	15.2% [10.4, 21.7]	21.0% [11.8, 34.5]
8th	21.2% [16.7, 26.5]	23.3% [14.8, 34.6]
9th	15.4% [12.1, 19.3]	19.2% [15.2, 23.9]
10th	8.4% [6.8, 10.4]	10.7% [8.2, 13.9]
11th	8.8% [6.7, 11.5]	8.5% [6.8, 10.7]
12th	8.7% [7.0, 10.8]	9.6% [7.2, 12.6]
<u>Ethnicity</u>		
Asian/PI	14.3% [10.1, 19.9]	15.0% [10.4, 21.1]
African American	12.7% [8.8, 18.1]	14.1% [8.5, 22.4]
Hispanic/Latino(a)	11.4% [9.6, 13.4]	13.9% [11.9, 16.1]
Caucasian	8.4% [7.2, 9.7]	8.9% [7.0, 11.3]

Note: Brackets contain the 95 percent confidence intervals.

Table 2.21 Use of 1-800-NOBUTTS Helpline by Gender, Grade and Ethnicity

	Lifetime Smokers (%)	Current Smokers (%)
Overall	4.6% [4.0, 5.3]	5.3% [4.3, 6.4]
<u>Gender</u>		
Female	3.2% [2.5, 4.1]	4.1% [2.8, 6.0]
Male	5.7% [4.7, 6.9]	6.1% [4.9, 7.5]
<u>Grade</u>		
6th	8.7% [3.6, 19.5]	15.9% [5.4, 38.6]
7th	8.7% [5.4, 13.5]	9.5% [3.6, 22.5]
8th	5.9% [3.3, 10.2]	4.7% [1.8, 11.6]
9th	5.2% [3.7, 7.3]	8.7% [6.1, 12.2]
10th	4.9% [3.8, 6.3]	4.9% [3.4, 7.2]
11th	4.3% [3.2, 5.8]	4.3% [3.1, 6.1]
12th	3.7% [2.9, 4.7]	3.9% [2.7, 5.7]
<u>Ethnicity</u>		
Asian/PI	5.0% [3.1, 7.8]	5.5% [2.8, 10.4]
African American	7.2% [4.6, 11.1]	8.4% [4.7, 14.5]
Hispanic/Latino(a)	5.3% [4.2, 6.6]	5.4% [4.0, 7.4]
Caucasian	3.3% [2.6, 4.3]	4.2% [2.7, 6.3]

Note: Brackets contain the 95 percent confidence intervals.

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Addendum.

Technical note. Algorithm for constructing sampling weights has changed.

Although of little practical consequence to the overall results, for the 2007-2008 data the contractors decided to use a slightly different algorithm for integrating the prevalence estimates obtained from respondents attending high schools participating in the school-longitudinal cohort with the prevalence estimates obtained from high schools participating in the cross-sectional study than had been the case for the 2005-2006 data. More details are provided in Chapter 1. Suffice it to say, here, that the old and new algorithms used to construct the sampling weights resulted in lifetime prevalence estimates that differed by an average of 0.1% for overall comparisons by sex and by

grade, as well as by 0.3% for overall comparisons by ethnicity. The corresponding differences between estimates of current smoking were less than 0.1% overall for gender and grade comparisons, and less than 0.2% for ethnic group-specific comparisons.

CHAPTER 3: STUDENT LEVEL DESCRIPTIVE DATA- ATTITUDES AND BELIEFS ABOUT TOBACCO USE

CHAPTER 3: Student-level Descriptive Data-

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CHAPTER 3: STUDENT LEVEL DESCRIPTIVE DATA- ATTITUDES AND BELIEFS ABOUT TOBACCO USE

CHAPTER HIGHLIGHTS

- The overall pattern of results shows that average California student cognitions remained generally consistent with low rates of tobacco use, particularly in middle school. More than 75 percent of students across age, gender, and ethnicity perceived tobacco to be harmful across three questions about tobacco-related harm.
- Fewer students report being exposed to other people's cigarette smoke in a room or in a car during the last seven days since the 2005-2006 IETP report. Less than a third of middle school students and less than half of high school students reported being exposed to other people's cigarette smoke in a room or in a car during the last seven days. These trends suggest a benefit of the 2008 California law prohibiting drivers from smoking in their cars when minors are present in the car.
- Contrary to U.S. – California comparisons in 2001-2004, California students no longer have stronger beliefs about the harmfulness of smoking compared to U.S. students. They no longer differ with respect to believing that exposure to second hand smoke is harmful (67.5 percent of California middle school students versus 70.6 percent of U.S. middle school students; 71.9 percent of California high school students versus 71.6 percent of U.S. high school students). California middle school students' belief about the harmfulness of limiting smoking to 1-2 years are now less anti-tobacco (71.9 percent) than nationally (71.7 percent); California high schools students' belief about the harmfulness of limiting smoking to 1-2 years are also now less anti-tobacco (58.5 percent) than nationally (66.5 percent).
- Seventy-seven percent of students who had been exposed to tobacco use prevention education lessons said that the tobacco use prevention information they had received at school was helpful to them in making decisions about tobacco use, although this endorsement of the helpfulness of tobacco use prevention education lessons declined with increasing grade level, from middle school (90%) through high school (76%).

Introduction

Psychosocial factors play an important role in the development of smoking behaviors among children and adolescents (Turner et al., 2004), as is reflected by their presence in the logic model guiding our analyses (Chapter 1). Some of these factors include advertising; role models who smoke; perceptions about one's ability to refuse an offer to smoke; peer influences to smoke; normative expectations with regard to smoking; the perception that smoking has personal utility; availability of cigarettes; and perceived harm. Flay, et al. (1983) proposed a model of cigarette smoking that identified predictable stages in the development of the smoking habit. In the first stage, peers and family who smoke play a role in influencing non-smokers to think about smoking cigarettes. These social influences and others continue to be cited as strong predictors of future tobacco use among youth, and prevention programs based on social influences approaches generally, but not always (e.g., Peterson et al., 2000) have been shown to decrease rates of adolescent smoking (Hahn et al., 1990; Sussman et al., 1990).

Students completing the CSTS were asked questions about tobacco use behaviors, and were asked to comment on their attitudes about the tobacco industry; social desirability of tobacco use; perceived health consequences of tobacco use; and, perceived social norms, to examine these possible influences. The domains and items used for the student-level analysis in Chapter 3 are found in Table 3.1 along with Cronbach alpha coefficients for each domain. This chapter will report student level descriptive results, and Chapters 5 and 8 will explore how grantee status and program implementation are related to student tobacco use and its correlates.

Social Perceptions/Social Appeal

The perceived social desirability of smoking is considered a strong predictor of smoking behavior among youth. A review of the literature on psychosocial factors related to adolescent smoking (Tyas and Pederson, 1998) identified 20 risk factors including age, ethnicity, peer smoking, peer attitudes and norms, family environment, school factors,

risk behaviors, stress, depression/distress, attitudes, and health concerns. Adolescents face many challenges that influence the development of their self-identity, and their peers play a major role in that development (Jessor, 1991). Sussman et al. (1995) offered three examples of informational social influences: identification with social images, estimates of prevalence of a behavior, and a specific perspective regarding an evaluative quality of a behavior. Youth who perceive that they will benefit socially by smoking, by appearing more independent, more grown-up, tougher, or friendlier, are more likely to be / become smokers (Botvin and Epstein, 1999; Chassin, Presson, and Sherman, 1990; Burton et al., 1989). More recent findings suggest that the social image of smokers held by young nonsmokers has become more negative, but for those youth who hold positive images of the typical smoker, the risk of initiation is higher. (Gerrard, Gibbons, Stock, Lune, & Cleveland, 2005). Among youth who hold more positive images of the typical nonsmoker, the risk of initiation 6 months later was significantly reduced. (Spijkerman, Van Den Eijnden, & Engels, 2007)

Respondents' answers to two CSTS questions were evaluated as evidence of how motivated they were by social desirability concerns. These questions were: (1) young people who smoke have more friends; and, (2) smoking cigarettes makes young people look cool/ fit in. Response options were "definitely yes," "probably yes," "probably not", and "definitely not." Responses were dichotomized by grouping definitely/probably yes into one response option and definitely/probably not into the second option.

The overall rates of students reporting either "definitely or probably not" that they believed young people who smoke cigarettes have more friends were similar for middle and high school students (77.6 percent and 78.0 percent, respectively). Across gender and ethnicity, fewer students perceived that smoking makes young people look cool than those perceiving that smokers have more friends. The results as presented in Table 3.2 are similar to those found in the 2005-06 IETP (McCarthy et al. 2008).

The only clear pattern in response rates for both of the social perceptions questions was that more Caucasian students in both middle and high schools responded negatively to

the social desirability questions compared to all other ethnic groups. These findings are consistent with those in 2005-06.

Health Consequences of Tobacco Use

Four questions in the CSTS were designed to assess perceived harmfulness of tobacco use and perceived harmfulness of exposure to second hand smoke. The results are presented in Table 3.2 for gender and ethnicity for middle and high school students separately. The response options were recoded so that all of the frequencies in the table are consistent and represent positive responses to each question. The “definitely” and “probably” categories were combined. Overall, most students (87-92 percent) believed that exposure to cigarette smoke either by smoking or through environmental exposure is harmful. However, there were slight declines in student recognition of the queried harmful consequences of smoking in 2007-08 relative to 2005-2006 on all of these items.

High school girls were more likely to report believing in the harmfulness of tobacco compared to boys across all three questions (87-94 percent for girls versus 81-89 percent for boys). Girls at middle schools were more likely to report believing in the harmfulness of tobacco compared to boys for all questions except for the harmfulness of smoking only for a year or two, where they were equal. When examining these items by ethnic group the results for both middle and high school youth showed a tendency for African American and Latino students to have less recognition of the queried negative health consequences of smoking (high school range = 82-91 percent) than Asian/Pacific Islander and Caucasian students (high school range = 85-93 percent). The data collected on perceived harm of cigarette smoking supported what others have found (e.g., Chassin et al., 2001). The majority of students from an early age understand the physical health consequences of tobacco use.

Social Influences

The CSTS included questions that asked students about their exposure to tobacco use at home, in a car, and with close friends. Three of these questions also assessed the exposure to second hand smoke (SHS), but were included in this section because they assessed the prevalence of smoking in the youths' environment. Table 3.3 shows the proportion of students responding either "zero" or "none" to five questions assessing social influences of cigarette smoking by gender, ethnicity, and current smoking status. Higher proportions of youth responding "no" or "never" suggest less social influence on smoking behavior. The response options were coded in the negative to allow for comparisons to National Youth Tobacco Survey (NYTS) - U.S. data (CDC, 2001, 2002, 2004).

The majority of youth responding to these questions were not exposed to tobacco smoke in a room or car, although the rates were substantially lower for high school students (57.0 percent) for non-exposure to tobacco smoke in a room (not at home) compared to middle school students (69.0 percent). Eighty percent of middle school students (81.3 percent) and 79.5 percent of high school students reported that during the past week they were not in a room *at home* with someone smoking cigarettes. Slightly fewer high school youth (76.7 percent) than middle school youth (82.0 percent) responded that they had not been in a car with someone who was smoking during the past seven days. A new California law prohibiting smoking in cars when minors are passengers took effect in January, 2008, midway through the survey. The percentage of high school students reporting having been in a car in the last 7 days when someone was smoking dropped from 27.1 percent [95 percent CI: 26.1, 28.2] in 2005-2006 to 23.3 percent [95 percent CI: 22.2, 24.4] in 2007-2008, a significant 14 percent reduction in exposure. The corresponding 12 percent drop reported by middle school students (from 20.5 percent to 18.0 percent) was nearly as impressive but because the sample size was smaller, this drop was not statistically significant. There is a three-percentage point increase from the 2005-06 IETP report among high school students reporting that they had not been exposed to cigarette smoking at home. Interestingly as in the previous IETP, the proportion of youth responding that they do not live with

someone who smokes is about ten percentage points lower than the proportion saying that they were not in a room *at home* with someone who was smoking. This suggests that while students may be living with others who smoke, the smoking behavior occurs outside or in an area of the home away from youth.

As in the 2005-06 report, the investigators compared the proportion of current smokers compared to non-smokers in how they responded to questions about second hand smoke exposure and about the effect of social influences on smoking. Not surprisingly, fewer smokers were able to report no SHS exposure than non-smokers (40.1 percent of smokers vs. 82.2 percent of non-smokers). Additionally, non-smokers were ten times more likely to report not having a close friend who smoked compared to smokers [OR = 10.25, 95 percent CI: 9.05 – 11.6].

Consistently lower proportions of African American middle school youth responded that they had not been exposed in a room, a room at home, or in a car. The rates of Caucasian high school students reporting no exposure to smoke in a room and in a car were lower than high school students from other ethnic groups. African American high school students (63.8 percent) and Asian/PI middle school students (63.1 percent) had the lowest rates of reporting not living with someone who smoked. Middle school Hispanic students had a slightly lower rate reporting that none of their friends smoke when compared to other ethnic groups. In high school, Hispanic and Caucasian students had lower rates by at least five percentage points, compared to Asian/Pacific Islanders and African Americans.

As might be expected, the proportion of high school students reporting that they did not have any close friends who smoked cigarettes was substantially lower than the proportion of middle school students (62.2 percent vs. 81.7 percent). Although the differences between age groups remained the same, the percent of students across groups reporting that they did not have any close friends who smoke cigarettes was nearly ten percentage points higher than 2001-2002 IETP. Also consistent with findings from the 2005-2006 IETP, Caucasians (86.3 percent) and Asian/PI (87.4 percent) students reported having no friends who smoked in middle school, compared to

Hispanic/Latino(a)s (77.5 percent). However, African Americans who reported having no friends who smoked, changed from 76.2 percent in 2005-2006 percent to 85.0 percent in 2007-2008. In high school this pattern was partially reversed, with Caucasians (60.1 percent), and Hispanic/Latino(a)s (60.8 percent) having lower rates of reporting that none of their closest friends smoke compared to Asian/PI (68.7 percent) and African Americans (60.5 percent). These numbers are roughly similar to those reported in 2005-06, and are approximately 10 percentage points higher than reported in 2001-02. The percentage of youth reporting no exposure to smoke in a car should increase in future years, now that California has a law prohibiting drivers from smoking in a car when minors are passengers. (Oropeza, 2007)

Social Perceptions, Social Influences, and Perceived Health

Consequences of Tobacco Use: Comparisons with NYTS-U.S. data

The NYTS-U.S. (CDC, 2006) also asked questions to assess social perceptions, health consequences and social influences. To facilitate comparing responses to questions from the CSTS with responses to similar questions from NYTS-U.S., only results for students responding “definitely not” or “definitely yes” to questions assessing these constructs were analyzed.

Table 3.4 presents the proportion of youth who answered “definitely not” to these two statements: (1) young people who smoke have more friends and (2) smoking cigarettes makes young people look cool/ fit in. The 2004 NYTS dropped the question about smokers having more friends but did ask the question about smoking helping people look cool. Results from the 2007-2008 CSTS confirmed the NYTS findings, showing that high school students were only slightly less likely than middle school students to deny that smoking could make someone look cool and help them to fit in socially (75.0 percent high school versus 78.2 percent middle school, respectively) but were weaker than the corresponding national figures (77.5 percent high school; 82.2 percent middle school). When looking at the results by gender, the 2007-08 CSTS patterns were similar to those of 2006 NYTS-U.S. in showing that a higher proportion of girls than boys responded “definitely not” when asked whether smokers looked cool. Both girls and

boys showed a significant drop from 82.0 and 74.6 percent (middle school) to 78.7 and 71.4 percent (high school), respectively.

Table 3.5 shows the rates for students responding to the questions assessing the perceived health consequences of smoking or being exposed to other people's smoke. Contrary to previous U.S. – California comparisons, California middle school students now have beliefs nonsignificantly weaker than corresponding U.S. middle school students that exposure to second hand smoke is harmful (67.5 percent in CA middle schools versus 70.6 percent in U.S. middle schools). California high school students now have beliefs nonsignificantly stronger (71.9 percent) than did their U.S. counterparts (71.7 percent), that exposure to second hand smoke is harmful. California middle school students' belief about the harmfulness of limiting smoking to 1-2 years are now less anti-tobacco (63.3 percent) than nationally (75.1 percent); California high schools students' belief about the harmfulness of limiting smoking to 1-2 years are also now less anti-tobacco (58.5 percent) than nationally (66.5 percent).

Attitudes and Beliefs About the Tobacco Industry

As was found in the third wave of the IESS and the three biennial IETP surveys since then, the prevailing attitude among both middle and high school students has been strongly negative regarding the tobacco industry. The most negative attitudes were about whether tobacco companies try to get people addicted to tobacco, although only slightly higher for high school students compared to middle school students. These numbers were not substantially different from the 2005-06 data. Table 3.6 depicts the results by gender and ethnicity. Asians and Caucasians tended to have more negative attitudes about the tobacco industry (range = 80 percent to 91 percent) than either Hispanic/Latino(a)s or African Americans. (range = 67 percent to 82 percent)

Media Exposure

Table 3.7 depicts the responses to anti-smoking media exposure by school type, gender, ethnic group, and smoking status. The patterns of the results are similar to

those found in the 2005-06 IETP for comparisons between media but represent a sharp drop in any exposure to anti-tobacco ads. Television was the most recalled media source of ads about the dangers of using tobacco for both middle (60.9 percent) and high (65.9 percent) school students. Slightly more students recalled seeing anti-smoking ads on billboards (45.3 percent – 43.6 percent) than hearing anti-smoking ads on the radio (42.2 percent – 39.5 percent), and high school students recalled radio ads at slightly lower rates than middle school students (39.5 percent high school versus 42.2 percent middle school). Age was not a big factor in students' recollection of being exposed to anti-smoking messages with 80.7 percent of middle school students and 86.6 percent of high school students reporting *any* exposure to anti-tobacco messages. No differences were shown for smokers vs. nonsmokers reporting exposure to anti-smoking messages for both middle and high school students with respect to billboards and television. For radio, however, smokers were more likely than nonsmokers to report hearing an anti-smoking ad, both in middle school (51.2 percent smokers versus 41.7 percent nonsmokers) and high school (42 percent smokers versus 39.1 percent nonsmokers). Consistently across gender, ethnicity, and current smoking status, more students in both middle and high schools reported being exposed to anti-smoking messages in the 2007-08 CSTS than students in the 2005-06 CSTS.

Table 3.8 shows the percent of students responding that they had seen specific anti-tobacco ads on television. The response patterns are consistently lower than comparable rates reported in the 2005-06 IETP. Fewer middle school students (51.4 percent) than high school students (65.5 percent) reported seeing at least one of the ads. Twice as many high school students (42.6 percent) as middle school students (19.7 percent) recalled seeing the American Legacy Foundation's 'truth' ads. Only 5.6 percent of middle and 4.5 percent of senior high students recalled exposure to ads of a fictional tobacco-marketing executive that ended with the question "Do you smell smoke?"

In addition to asking about anti-tobacco media exposure the 2007-08 CSTS asked questions about exposure to pro-smoking electronic media messages or tobacco industry paraphernalia. Table 3.9 shows the proportion of youth responding that they

had seen actors using tobacco either in the movies or on television or responding that they had seen tobacco advertisements at community events. Far more students reported seeing actors using tobacco than recalled seeing tobacco advertising at community events across age and gender. The patterns are similar to the findings from the 2005-06 IETP. More middle school current smokers reported exposure to pro-tobacco media than non-smokers by more than sixteen percentage points (50.7 versus 34.1 percent, respectively). The difference between smokers and nonsmokers was much smaller for high school students (39.3 versus 37.9 percent, respectively). This finding is consistent with previous observations. For example, Slater and associates reported that 8th graders are more influenced by commercial messages promoting cigarette smoking than 10th and 12th graders. (Slater, Chaloupka, Wakefield, Johnston, & O'Malley, 2007)

Students were also asked two questions about tobacco company paraphernalia: (1) if they had ever received or purchased it; and, (2) whether or not they ever wore/used it. Although the rates for high school students were lower in general compared to middle school students, most reported not buying or receiving tobacco related items (88.6 percent middle and 85.6 percent high school), nor did they wear or use tobacco related items (55.8 percent middle and 38.9 percent high school). These numbers are similar to numbers reported in the 2005-06 IETP. Across age groups, boys were more likely than girls to have either received or used tobacco-related items (see Table 3.10) ($p < 0.05$). The percentage of current smokers reporting that they had received or would wear tobacco-related items was far higher than for non-smokers across all age groups.

Normative Expectations

Accuracy of perceived norms about peer tobacco use is one factor in predicting the onset and development of tobacco use (Hansen, 1991) (Cunningham & Selby, 2007) (Primack, Switzer, & Dalton, 2007). Perceived norms were assessed by asking respondents to mark "True", "False", or "Don't know/not sure" in response to the statement, "Most people do NOT smoke cigarettes." The percent of students responding "true" to this question (56.0 percent of students in grade six compared to 32.6 percent of

students in grade 12) was slightly lower for 12th graders, compared to the 2005-06 data. It is noteworthy that fewer high school students (29.9 percent) than middle students (46.8 percent) believed that most young people their age do not smoke. This probably reflects the reality that a higher proportion of high school students do, in fact, smoke, relative to when they were middle school students. It is, nonetheless, disheartening for so many high schoolers to erroneously assume that cigarette smoking is a majority phenomenon among their peers. These results are found in Table 3.11.

Exposure to Tobacco Lessons

When asked if they had received information about tobacco at school in the last year, there was a nearly monotonic decline by grade in students reporting “yes”, they had received information about tobacco at school in the last year. The responses ranged from a high of 80.4% in 6th grade to 49.4% in 12th grade. These results are found in Table 3.12. Our data show that most of the tobacco lessons were taught in specific classes, such as science, health, and physical education. The decline in rates of students recalling exposure to information about tobacco in high school is not unexpected. There may be fewer opportunities to infuse the curriculum with TUPE messages in the senior high classes, even if the school received competitive TUPE funding. Only in the 12th grade were students in TUPE-funded schools more likely to report having received information about tobacco use than students in schools without current TUPE funding.

Of those recalling that they had been exposed to tobacco use prevention education lessons, 93.7 percent of students in grade six perceived tobacco use prevention information received at school to be helpful in making decisions about tobacco use, and across all grade levels the overall proportion of students perceiving the information as helpful was 77.4 percent. The ratings of perceived helpfulness of the tobacco-related information shown in Table 3.13 declined monotonically with age, with only 66.4 percent of students in grade 12 feeling that tobacco use prevention information was helpful. Ninety percent of middle school students reported that the tobacco use prevention information they received was helpful compared to 76 percent of high school students.

When asked if the information received at school helped them to feel that it's okay to say "no" to friends who offer cigarettes, 92.0 percent of students in grade six reported that the information was helpful. This perception fell to 69.0 percent in grade 12.

Students' remembered exposure to tobacco use prevention information provided at school appears to be related to their perceived self-efficacy for refusing peer offers of tobacco. Students recalling that they had been exposed to tobacco lessons in school during the last year were 1.66 times more likely to report that what they learned in school helped them to feel it's okay to say "no" to cigarette offers from friends (OR = 1.66; 95% CI: [1.45, 1.90]).

Awareness of Specific Tobacco Control Activities

Table 3.14 shows the percentage of students who recalled tobacco lesson topics, by middle and high school students, gender, and ethnicity. Overall, fewer high school students recalled various topics. The results are similar across gender and no consistent patterns emerged for ethnic groups. As can be seen in Figure 3.1 the frequency of students recalling having been exposed to selected tobacco use prevention topics decreased with age for all topics. The physical harm associated with tobacco use continues to be one of the topics most frequently cited by students as being taught in the tobacco use prevention education lessons. They mention, almost as frequently, having a guest speaker talk to their class about not using tobacco, suggesting that teachers are going beyond the traditional didactic strategy of lecturing on the harmful consequences of tobacco use. Current smokers consistently report less exposure to TUPE activities than students who do not smoke.

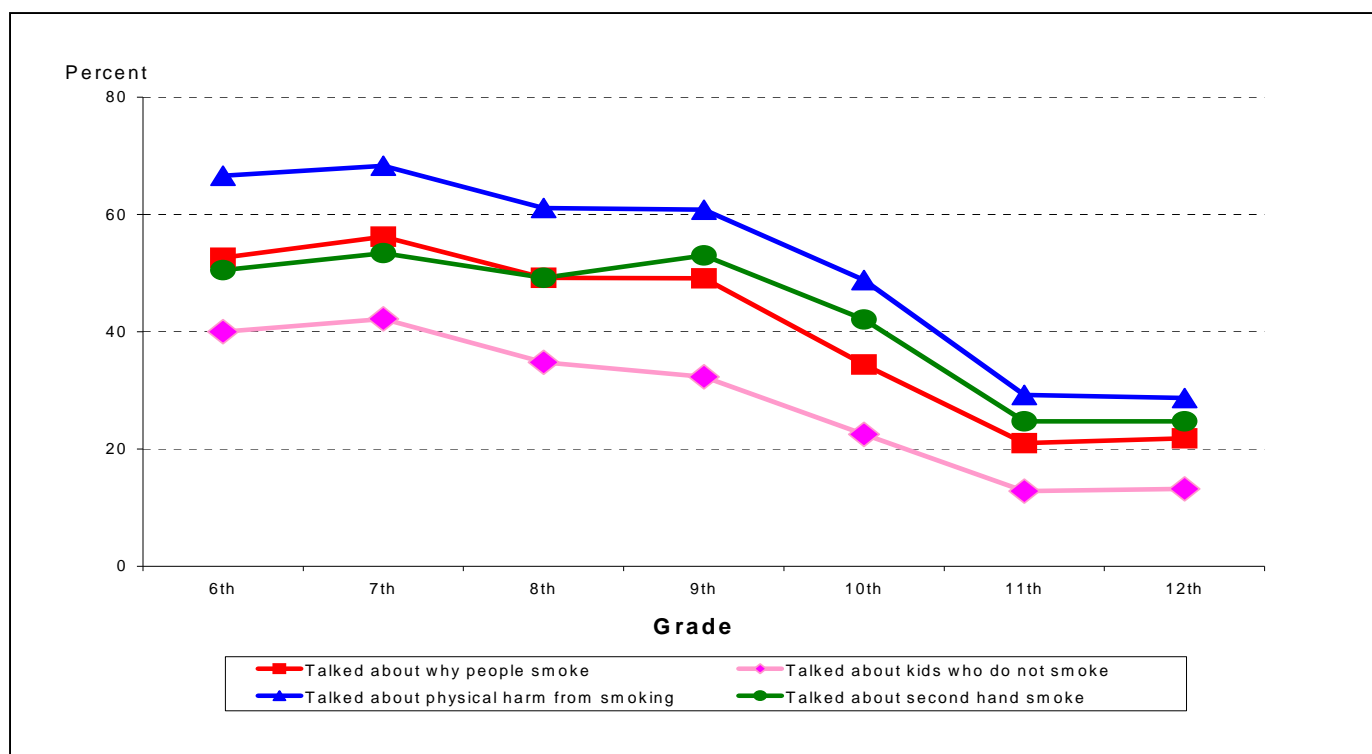
As reflected in table 3.16, students across age groups, gender, and ethnicity were more aware of peer trainings to help others stop smoking than were aware of actual cessation classes at their school. Fifty-two percent (51.0 percent) of middle school students and 51.4 percent of high school students responded "yes" to the question about peer trainings to help others stop smoking. This is a substantial increase from the 2001-02 findings, which were under 10 percent and is about the same as in the 2005-06 CSTS. Thirty-two percent (32.9 percent) of high school students compared to 13.0 percent of

middle school students knew about cessation classes, comparable to corresponding rates in 2005-06. Looking at current smokers and non-smokers across grades, more non-smokers were aware of peer trainings than smokers. Current smokers and non-smokers showed no differences in reporting cessation classes across grades. Chapter 7 discusses how student awareness of school-based cessation resources corresponds to teachers' and administrators' perceptions about school-based resources for tobacco use prevention.

Current Smokers: Perceptions, Exposure to Second Hand Smoke, and the Media

To look more closely at how social influences are related to current smokers, the items depicted in Table 3.1 were summarized using confirmatory factor analysis. The Cronbach alphas for the reliability of the items comprising each of the eight resulting factors (domains) ranged from 0.49 to 0.82. For each domain the responses were divided into high, medium, and low categories by dividing the distribution of respondents roughly equally into three groups. Table 3.17 shows the percent of current smokers falling into the low, medium, and high categories. In general, the results are what would be expected. Across age groups, smoking was inversely related to two social consequence domains: (1) negative social perceptions (smokers do not have more friends and smoking does not make young people look cool), and (2) perceived negative health consequences. More current smokers (12.5 percent middle and 25.2 percent high school) fell into the low category of students with negative social perceptions of smoking. The pattern was similar for the perceived negative health

Figure 3.1 Frequency of Students Recalling Having Been Exposed to Selected Topics



consequences domain. Higher percentages (10.5 percent and 26.4 percent) of middle and high school current smokers were grouped into the low category (students do not believe that smoking is harmful) compared to 1.3 percent of middle and 5.8 percent of high school smokers falling into the high category. A higher percentage of smokers fell into the high category for exposure to second hand smoke (15.0 percent and 34.3 percent) and for exposure to pro-tobacco media (19.8 percent and 34.6 percent) for both middle and high school students, respectively. For high school students, 18.4 percent of smokers fell into the low category for anti-tobacco industry beliefs compared to 11.0 percent in the high group, indicating that current smokers were less likely to hold anti-tobacco industry beliefs, which is consistent with the pattern of results obtained in the 2005-2006 IETP. With respect to exposure to pro-tobacco media exposure, not surprisingly, the smokers tended to congregate on the high end (7.6 percent in middle school; 16.0 percent in high school) compared to the low end (2.6 percent in middle

school; 10.1 percent in high school). There were no clear response patterns for smokers with respect to the domain assessing recall of anti-tobacco TV messages; respondents were evenly distributed across the low, medium, and high categories.

Conclusion

The findings reported in this chapter are generally, but not always, consistent with the findings in the 2005-06 CSTS. The vast majority of California's young people continue to report negative perceptions about tobacco use. Girls were more likely to report believing in the harmfulness of tobacco compared to boys. A majority of youth (57 percent of high school students; 69 percent of middle school students) were not exposed to second hand smoke. The older students reported higher estimates of the prevalence of peer tobacco use than the younger students, a finding consistent with the corresponding finding in the 2005-2006 IETP. New analyses looking at social influences across smoking status found that smokers reported higher rates of exposure to smoking at home, in the car, and among friends than nonsmokers. The perception, reported by students, that the content of tobacco use prevention messages focuses more on the physical consequences of tobacco use than on social resistance skills or use of peer leaders to help students quit smoking may represent lost opportunities for prevention. This may also help to explain older students' decreasing satisfaction with the content of the tobacco use prevention messages with increasing grade level.

Fortunately, the overall pattern of results shows that average California student cognitions remained generally consistent with low rates of tobacco use, particularly in middle school. Two worrisome trends, however, cloud the future for California youth with respect to their avoiding addiction to tobacco. One is that California youth now report the same strength of beliefs as students nationally about the harmfulness of exposure to second hand smoke. California youth hold less strong anti-tobacco beliefs than students nationally about the harmfulness of smoking limited to only one or two years. California students are also now slightly less likely than students nationally to strongly deny that smoking helps people look cool. The second worrisome trend is a

tendency for California students to hold less strong anti-tobacco beliefs as they progress from middle school to high school.

TABLES

Table 3.1 Items Used in the Analysis (Student Survey)

Domain (Cronbach's Alpha)	Question Number (Q)	Question
<u>Social perceptions about smoking (0.63)</u>	Q39	Do you think young people who smoke cigarettes have more friends?
	Q38	Do you think smoking cigarettes makes young people look cool or fit in?
<u>Perceived health consequences from smoking (0.49)</u>	Q40	Do you think young people risk harming themselves if they smoke from 1 to 5 cigarettes per day?
	Q41	Do you think it is safe to smoke for only a year or two, as long as you quit after that?
	Q55	Do you think the smoke from other people's cigarettes is harmful to you?
<u>Secondhand Smoke (0.82)</u>	Q52	During the past 7 days, on how many days were you in the same room with someone who was smoking cigarettes?
	Q53	During the past 7 days, on how many days were you in the same room AT HOME with someone who was smoking cigarettes?
	Q54	During the past 7 days, on how many days did you ride in a car with someone who was smoking cigarettes?
<u>Anti-tobacco industry norms (0.64)</u>	Q77	Do you think that tobacco companies try to get people addicted to cigarettes?
	Q78*	Tobacco companies would stop selling cigarettes if they knew for sure that smoking hurts people.
	Q79	Tobacco companies try to get young people to start smoking by using advertisements that are attractive to young people.

Table 3.1 Items Used in the Analysis (Student Survey)

Domain (Cronbach's Alpha)	Question Number (Q)	Question
<u>Media Exposure</u>		
<u>Anti-Tobacco Media Exposure (0.68)</u>	Q72	When you listen to the radio, how often do you hear advertisements about NOT smoking or about NOT chewing tobacco?
	Q73	When you see billboards (outdoor signs), how often do you see advertisements about NOT smoking or about NOT chewing tobacco?
	Q74	When you watch TV, how often do you see stories or advertisements about the dangers of smoking tobacco or chewing tobacco?
<u>Pro-Tobacco Media Exposure (0.50)</u>	Q48	When you are using the Internet, how often do you see ads for tobacco products?
	Q49	When you watch TV or go to the movies, how often do you see actors using tobacco?
	Q50	During the past 12 months, did you buy or receive anything that has a tobacco company name or picture on it?
	Q51	Would you ever use or wear something that has a tobacco company name or picture on it such as a lighter, T-shirt, hat, or sunglasses?
	Q52	When you go to sports events, fairs, or community events, how often do you see advertisements for cigarettes or chewing tobacco?
<u>Recalled TV Messages (0.55)</u>		During the last 30 days, do you remember seeing on TV any of the following messages ABOUT NOT SMOKING?
	Q76a	Showed smoke swirling on screen and voices talking about smoking situations.
	Q76b	Showed tobacco executives from a tobacco company talking about light cigarettes.
	Q76c	Showed tobacco executives talking about becoming a friend of ethnic communities by paying for and supporting community events and organizations.
	Q76d	Showed the inside of a body and the damage done by breathing in smoke from someone else's cigarette.
	Q76e*	Ending with the word "truth".
	Q76f	Ending with the phrase "do you smell smoke".
<u>Smoking Norms</u> Percentage Reporting	Q93	Most young people do NOT smoke cigarettes.

Notes: * Item was dropped in creating an index for each domain based on results of factor analyses and Cronbach's alpha

Table 3.2 Perceptions about Consequences of Tobacco Use

Measures	Middle School						
	Overall	Female	Male	Asian/PI	African American	Hispanic/Latino(a)	Caucasian
<u>Perceived Social Consequences</u>							
Young people who smoke cigarettes have more friends ¹	78.7% [75.1, 81.9]	79.9% [74.7, 84.2]	77.6% [74.3, 80.5]	78.2% [72.1, 83.3]	81.9% [74.5, 87.5]	73.9% [71.3, 76.4]	87.3% [83.1, 90.6]
Smoking cigarettes makes young people look cool/ fit in ¹	89.6% [88.0, 91.0]	91.1% [89.4, 92.5]	88.2% [85.9, 90.1]	91.8% [87.3, 94.7]	90.6% [86.9, 93.9]	87.6% [85.9, 89.1]	92.8% [89.7, 95.0]
<u>Perceived Health Consequences</u>							
Young people risk harming themselves if they smoke 1-5 cigarettes/day ²	82.3% [79.8, 84.6]	84.4% [81.8, 86.8]	80.3% [77.1, 83.1]	88.6% [81.8, 93.1]	75.0% [66.2, 82.1]	80.3% [77.7, 82.8]	86.3% [82.8, 89.2]
It's safe to smoke for only a year or two, as long as you quit after that ¹	83.5% [81.6, 85.3]	83.7% [80.5, 86.5]	83.3% [81.9, 85.5]	84.4% [73.0, 91.6]	83.8% [79.2, 87.6]	81.8% [79.2, 84.0]	86.9% [83.8, 89.5]
The smoke from other people's cigarettes is harmful to you ²	87.3% [84.5, 89.6]	89.4% [87.0, 91.4]	85.3% [81.2, 88.6]	90.3% [84.9, 93.9]	82.8% [77.3, 87.2]	85.1% [82.9, 87.1]	91.6% [87.5, 94.5]

Notes: Brackets contain the 95 percent confidence intervals.

¹Percent responding "Definitely Not" or "Probably Not"²Percent responding "Definitely Yes" or "Probably Yes"

Table 3.2 Perceptions about Consequences of Tobacco Use (Continued)

Measures	High School						
	Overall	Female	Male	Asian/PI	African American	Hispanic/Latino(a)	Caucasian
<u>Perceived Social Consequences</u>							
Young people who smoke cigarettes have more friends ¹	80.0% [78.6, 81.3]	83.0% [81.3, 84.5]	77.1% [75.3, 78.7]	78.4% [75.3, 81.2]	78.5% [75.3, 81.3]	76.5% [74.8, 78.0]	86.3% [84.4, 88.1]
Smoking cigarettes makes young people look cool/fit in ¹	89.2% [88.2, 90.1]	91.3% [89.8, 92.6]	87.1% [86.1, 88.0]	88.5% [86.9, 90.0]	87.5% [84.2, 90.2]	89.0% [87.9, 90.1]	90.2% [88.2, 92.0]
<u>Perceived Health Consequences</u>							
Young people risk harming themselves if they smoke 1-5 cigarettes/day ²	88.9% [87.9, 89.9]	91.2% [90.0, 92.2]	86.7% [85.3, 88.0]	90.2% [88.2, 91.9]	82.5% [78.4, 86.0]	87.6% [86.5, 88.7]	92.0% [90.5, 93.3]
It's safe to smoke for only a year or two, as long as you quit after that ¹	83.9% [82.7, 84.9]	87.1% [85.8, 88.4]	80.6% [79.3, 81.9]	85.3% [82.5, 87.7]	83.2% [79.5, 86.4]	81.9% [80.3, 83.4]	86.1% [84.7, 87.3]
The smoke from other people's cigarettes is harmful to you ²	91.8% [91.1, 92.5]	94.5% [93.8, 95.2]	89.1% [88.0, 90.2]	92.6% [90.8, 94.1]	90.3% [87.7, 92.5]	90.7% [89.6, 91.7]	93.4% [92.1, 94.5]

Notes: Brackets contain the 95 percent confidence intervals.

¹Percent responding "Definitely Not" or "Probably Not"²Percent responding "Definitely Yes" or "Probably Yes"

Table 3.3 Second Hand Smoke and Social Influence of Smoking (Percent Responding “None” or “0”)

	Exposure to cigarette smoke¹	Exposure to cigarette smoke at home²	Exposure to cigarette smoke in car³	Live with smoker⁴	Close friend smokes⁵
Middle School					
Overall	69.0% [66.0, 71.8]	81.3% [77.5, 84.6]	82.0% [78.6, 84.9]	68.5% [63.8, 72.8]	81.7% [77.1, 85.5]
Female	69.4% [64.8, 73.7]	81.9% [78.2, 85.1]	82.5% [79.0, 85.5]	68.7% [63.3, 73.7]	82.0% [77.8, 85.6]
Male	68.6% [65.9, 71.1]	80.7% [76.1, 84.6]	81.4% [77.6, 84.7]	68.3% [63.9, 72.5]	81.4% [76.0, 85.7]
Asian/PI	70.3% [63.6, 76.3]	81.4% [75.1, 86.4]	84.4% [77.4, 89.6]	64.9% [55.5, 73.2]	87.4% [80.7, 92.1]
African American	63.1% [54.0, 71.4]	75.7% [68.9, 81.4]	70.2% [62.6, 76.7]	56.9% [48.2, 65.2]	85.0% [77.9, 90.2]
Hispanic/Latino(a)	70.8% [68.3, 73.1]	81.9% [79.2, 84.2]	82.1% [80.1, 84.0]	67.7% [64.9, 70.3]	77.5% [73.5, 81.1]
Caucasian	67.3% [59.2, 74.6]	82.3% [71.2, 89.7]	83.9% [76.2, 89.4]	74.0% [63.1, 82.7]	86.3% [79.6, 91.0]
Non-current Smoker	71.7% [69.1, 74.1]	83.7% [80.3, 86.6]	84.4% [81.2, 87.1]	70.3% [65.6, 74.6]	84.8% [80.8, 88.1]
Current Smoker	23.7% [17.4, 31.5]	43.5% [35.3, 52.0]	41.7% [32.0, 52.1]	37.2% [30.5, 44.4]	22.8% [17.1, 29.9]
High School					
Overall	57.0% [55.7, 58.3]	79.5% [78.1, 80.7]	76.7% [75.6, 77.8]	68.1% [66.5, 69.6]	62.2% [60.6, 63.7]
Female	56.1% [54.4, 57.8]	79.4% [77.6, 81.2]	76.4% [74.8, 77.8]	67.9% [65.9, 69.9]	62.8% [60.9, 64.6]
Male	58.0% [56.6, 59.4]	79.5% [78.2, 80.7]	77.0% [75.6, 78.3]	68.2% [66.5, 69.8]	61.5% [59.5, 63.5]
Asian/PI	60.2% [56.1, 64.1]	79.1% [75.0, 82.7]	79.2% [76.4, 81.7]	63.1% [58.2, 67.7]	68.7% [65.6, 71.6]
African American	55.4% [51.0, 66.0]	72.4% [68.8, 75.8]	74.1% [69.5, 78.3]	63.8% [59.6, 67.8]	65.6% [61.0, 70.0]
Hispanic/Latino(a)	60.1% [58.8, 61.4]	81.6% [80.1, 83.0]	79.1% [77.9, 80.2]	68.3% [66.2, 70.3]	60.8% [58.3, 63.2]
Caucasian	51.8% [49.4, 54.2]	78.8% [76.1, 81.3]	73.3% [70.9, 75.6]	71.0% [68.4, 73.4]	60.1% [57.3, 62.8]
Non-current Smoker	62.4% [61.0, 63.8]	82.9% [81.5, 84.2]	82.6% [81.5, 83.7]	70.5% [68.9, 72.0]	69.6% [68.2, 71.0]
Current Smoker	25.1% [23.2, 27.0]	59.3% [56.4, 62.1]	41.5% [39.2, 43.9]	53.3% [49.9, 56.6]	18.1% [16.2, 20.2]

Notes: Brackets contain the 95 percent confidence intervals.

¹ Q52. During the past 7 days, on how many days were you in the same room with someone who was smoking cigarettes?² Q53. During the past 7 days, on how many days were you in the same room AT HOME with someone who was smoking cigarettes?³ Q54. During the past 7 days, on how many days did you ride in a car with someone who was smoking cigarettes?⁴ Q56. Does anyone who lives with you NOW smoke cigarettes?⁵ Q57. How many of your four closest friends smoke cigarettes?

Table 3.4 Perceived Social Consequences of Smoking

	Smokers have more friends¹ ("Definitely Not")	Smokers look cool or fit in² ("Definitely Not")
Middle School		
Overall	46.4% [42.3, 50.5]	78.2% [75.5, 80.7]
Female	47.5% [42.0, 53.0]	82.0% [78.9, 84.7]
Male	45.4% [42.0, 48.8]	74.6% [71.5, 77.4]
Asian/PI	49.6% [42.2, 57.1]	80.8% [77.2, 83.9]
African American	50.9% [43.8, 58.0]	76.9% [71.2, 81.8]
Hispanic/Latino(a)	40.2% [37.4, 43.0]	75.2% [72.4, 77.9]
Caucasian	54.4% [50.4, 58.3]	82.9% [78.8, 86.4]
Non-current Smoker	47.5% [43.6, 51.6]	80.6% [78.2, 82.8]
Current Smoker	24.9% [18.6, 32.5]	40.7% [33.6, 48.3]
High School		
Overall	43.9% [42.4, 45.5]	75.0% [73.6, 76.4]
Female	46.1% [44.3, 48.0]	78.7% [76.7, 80.6]
Male	41.7% [40.0, 43.5]	71.4% [69.8, 72.9]
Asian/PI	44.3% [40.2, 48.5]	73.9% [70.4, 77.2]
African American	46.5% [42.2, 50.8]	79.4% [76.1, 82.3]
Hispanic/Latino(a)	40.5% [38.0, 43.0]	74.9% [73.0, 76.7]
Caucasian	48.1% [45.7, 50.5]	74.5% [71.6, 77.2]
Non-current Smoker	46.3% [44.6, 48.0]	79.6% [78.4, 80.9]
Current Smoker	29.4% [27.4, 31.6]	47.5% [44.7, 50.4]

Note: Brackets contain the 95 percent confidence intervals.

¹ Q39. Do you think young people who smoke cigarettes have more friends?

² Q38. Do you think smoking cigarettes makes young people look cool or fit in?

Table 3.5 Perceived Health Consequences of Smoking or Exposure to Smoke

	Safe to smoke¹ (“Definitely Not”)	Perceived harm of smoking² (“Definitely Yes”)	Perceived harm of second hand smoke³ (“Definitely Yes”)
Middle School			
Overall	63.3% [60.6, 65.9]	68.5% [64.6, 72.1]	67.5% [62.7, 71.9]
Female	64.7% [60.6, 68.7]	71.5% [67.3, 75.5]	70.4% [65.7, 74.7]
Male	61.9% [58.8, 65.0]	65.5% [61.2, 69.6]	64.6% [59.2, 69.7]
Asian/PI	65.5% [57.1, 73.0]	74.8% [68.5, 80.3]	75.9% [67.6, 82.6]
African American	66.3% [59.9, 72.2]	66.0% [57.9, 73.3]	64.3% [56.2, 71.6]
Hispanic/Latino(a)	60.2% [57.3, 63.1]	63.9% [60.2, 67.4]	62.4% [58.9, 65.8]
Caucasian	68.0% [63.9, 71.8]	76.1% [70.0, 81.2]	75.3% [68.6, 81.0]
Non-current Smoker	65.4% [62.6, 68.2]	69.9% [66.1, 73.5]	69.5% [64.9, 73.7]
Current Smoker	28.8% [19.9, 39.8]	46.3% [38.1, 54.7]	34.0% [26.9, 41.8]
High School			
Overall	58.8% [56.9, 60.6]	74.0% [72.7, 75.3]	71.9% [70.6, 73.1]
Female	63.3% [61.3, 65.3]	77.6% [75.8, 79.3]	75.6% [74.2, 77.0]
Male	54.3% [51.9, 56.7]	70.5% [69.1, 71.8]	68.2% [66.6, 69.7]
Asian/PI	61.6% [57.3, 65.7]	78.6% [75.6, 81.3]	77.5% [74.5, 80.2]
African American	65.5% [61.2, 69.6]	70.1% [65.8, 74.1]	75.7% [71.6, 79.4]
Hispanic/Latino(a)	56.8% [55.1, 58.5]	71.7% [70.4, 73.0]	68.7% [67.1, 70.2]
Caucasian	59.2% [55.9, 62.3]	76.7% [74.5, 78.7]	73.6% [71.1, 75.9]
Non-current Smoker	63.8% [62.0, 65.5]	77.5% [76.1, 78.9]	75.0% [73.6, 76.4]
Current Smoker	28.5% [25.9, 31.2]	53.3% [50.5, 56.0]	53.0% [50.2, 55.9]

Note: Brackets contain the 95 percent confidence intervals.

¹ Q41. Do you think it is safe to smoke for only a year or two, as long as you quit after that?

² Q40. Do you think young people risk harming themselves if they smoke from 1 to 5 cigarettes per day?

³ Q55. Do you think the smoke from other people's cigarettes is harmful to you?

Table 3.6. Attitudes about Tobacco Industry

Measures	Overall	Female	Male	Asian/PI	African American	Hispanic/Latino(a)	Caucasian
Middle School							
Tobacco companies would stop selling cigarettes if they knew for sure that smoking hurts people ¹	79.3% [74.5, 83.4]	80.6% [74.1, 85.7]	78.1% [73.9, 81.8]	79.5% [68.3, 87.4]	67.3% [60.2, 73.7]	75.2% [70.8, 79.1]	89.1% [84.4, 92.5]
Tobacco companies try to get people addicted to cigarettes ²	85.2% [82.0, 87.9]	86.6% [83.6, 89.1]	83.8% [79.5, 87.4]	87.6% [82.4, 91.4]	79.1% [72.8, 84.2]	82.1% [79.3, 84.6]	90.7% [86.4, 93.7]
Tobacco companies try to get young people to start smoking by using advertisements that are attractive to young people ²	78.0% [74.4, 81.2]	79.5% [75.8, 82.8]	76.5% [72.3, 80.3]	82.9% [76.2, 88.0]	69.0% [58.3, 77.9]	74.2% [71.4, 76.7]	84.8% [80.7, 88.1]
High School							
Tobacco companies would stop selling cigarettes if they knew for sure that smoking hurts people ¹	87.7% [86.6, 88.7]	89.8% [88.7, 90.9]	85.6% [83.7, 87.3]	89.4% [87.6, 91.1]	82.6% [79.4, 85.4]	84.7% [83.2, 86.1]	93.0% [91.9, 93.9]
Tobacco companies try to get people addicted to cigarettes ²	88.4% [87.4, 89.4]	89.7% [88.4, 90.8]	87.1% [85.6, 88.5]	90.8% [89.3, 92.1]	86.9% [83.5, 89.7]	86.0% [84.4, 87.4]	92.1% [90.9, 93.2]
Tobacco companies try to get young people to start smoking by using advertisements that are attractive to young people ²	85.0% [84.1, 85.9]	87.3% [86.1, 88.5]	82.7% [81.6, 83.8]	86.9% [84.9, 88.7]	82.7% [79.7, 85.4]	82.4% [81.0, 83.7]	88.9% [88.0, 89.8]

Notes: Brackets contain the 95 percent confidence intervals.

¹Percent responding "Definitely Not" or "Probably Not"²Percent responding "Definitely Yes" or "Probably Yes"

Table 3.7 Media Exposure to Anti-smoking Messages (Percent Responding "Sometimes" or "A lot")

	Radio ¹	Billboard ²	TV ³	Any exposures to anti-smoking messages
Middle School				
Overall	42.2% [38.8, 45.7]	45.3% [41.5, 49.2]	60.9% [58.9, 62.7]	80.7%
Female	40.9% [36.7, 45.3]	45.0% [40.3, 49.7]	60.4% [57.9, 62.9]	81.4%
Male	43.6% [40.1, 47.1]	45.6% [41.7, 49.6]	61.3% [58.2, 64.3]	80.1%
Asian/PI	35.3% [30.1, 40.9]	46.0% [38.7, 53.4]	56.0% [50.3, 61.7]	85.8%
African American	51.4% [41.7, 61.1]	47.7% [38.5, 57.0]	68.3% [56.6, 78.0]	85.1%
Hispanic/Latino(a)	45.7% [41.7, 49.8]	50.6% [46.3, 54.9]	63.3% [60.6, 65.8]	78.0%
Caucasian	37.1% [33.1, 41.3]	36.4% [32.1, 40.9]	57.8% [53.5, 62.1]	85.9%
Non-current Smoker	41.7% [38.3, 45.2]	45.3% [41.7, 48.9]	60.9% [58.8, 63.0]	81.4%
Current Smoker	51.2% [43.2, 59.2]	46.8% [35.1, 58.8]	59.6% [51.0, 67.7]	70.0%
High School				
Overall	39.5% [38.1, 41.0]	43.6% [42.3, 44.9]	65.9% [64.9, 66.9]	86.6%
Female	37.3% [35.9, 38.6]	41.7% [40.1, 43.4]	66.1% [64.6, 67.5]	88.8%
Male	42.0% [39.8, 44.1]	45.5% [43.7, 47.3]	65.7% [64.2, 67.1]	84.3%
Asian/PI	37.0% [33.7, 40.4]	41.5% [39.2, 43.9]	64.4% [61.4, 67.3]	89.9%
African American	44.7% [40.3, 49.2]	53.2% [48.4, 57.9]	66.5% [61.3, 71.3]	80.8%
Hispanic/Latino(a)	42.9% [40.9, 45.0]	46.7% [45.2, 48.3]	66.8% [65.3, 68.3]	84.6%
Caucasian	34.1% [31.7, 36.5]	37.5% [35.6, 39.5]	65.1% [63.7, 66.4]	89.8%
Non-current Smoker	39.1% [37.5, 40.8]	43.4% [41.8, 45.0]	66.2% [65.0, 67.4]	87.5%
Current Smoker	42.0% [39.5, 44.6]	44.2% [42.1, 46.2]	64.0% [61.1, 66.8]	81.2%

Note: Brackets contain the 95 percent confidence intervals.

¹ Q72. When you listen to the radio, how often do you hear advertisements about NOT smoking or NOT chewing tobacco?² Q73. When you see billboards (outdoor signs), how often do you see advertisements about NOT smoking or about NOT chewing tobacco?³ Q74. When you watch TV, how often do you see stories or advertisements about the dangers of smoking tobacco or chewing tobacco?

Table 3.8 Recall Viewing Specific Television Ads

	Overall	Female	Male	Asian/PI	African American	Hispanic/Latino(a)	Caucasian
Middle School							
Smoke swirls on screen	24.5% [21.5, 27.7]	22.5% [19.9, 25.3]	26.4% [21.5, 32.0]	21.7% [14.2, 31.7]	30.9% [23.3, 39.7]	24.5% [21.9, 27.3]	24.7% [20.3, 29.8]
Talk about light cigarettes	12.7% [11.3, 14.3]	12.2% [10.1, 14.7]	13.3% [11.4, 15.4]	8.5% [5.6, 12.9]	17.7% [14.0, 22.1]	12.1% [10.3, 14.2]	14.4% [11.6, 17.8]
Talk about becoming a friend of ethnic communities	9.1% [8.0, 10.4]	10.1% [8.0, 12.8]	8.1% [6.7, 9.7]	6.8% [4.1, 11.1]	11.4% [7.5, 17.0]	10.1% [8.9, 11.6]	8.2% [6.1, 10.9]
Inside of a body and damage	20.2% [18.4, 22.1]	22.9% [20.1, 25.9]	17.5% [15.0, 20.3]	19.6% [17.5, 22.0]	20.0% [11.9, 31.6]	18.1% [16.4, 19.9]	24.5% [21.4, 27.9]
End with word "truth"	19.7% [17.5, 22.1]	18.9% [15.6, 22.7]	20.5% [17.7, 23.6]	18.0% [13.4, 23.6]	18.0% [11.4, 27.3]	18.2% [15.4, 21.3]	24.4% [21.2, 28.0]
"Do you smell smoke?"	5.6% [4.6, 6.8]	6.0% [4.2, 8.5]	5.2% [3.6, 7.6]	4.0% [2.1, 7.7]	3.3% [1.1, 9.5]	5.3% [4.0, 7.0]	7.1% [5.9, 8.5]
Any of the above	51.4% [47.0, 55.8]	50.6% [45.4, 55.7]	52.2% [47.6, 56.7]	43.3% [34.7, 52.3]	50.4% [40.4, 60.4]	51.9% [47.6, 56.1]	55.8% [51.3, 60.3]
High School							
Smoke swirls on screen	21.7% [20.5, 23.0]	21.0% [19.5, 22.6]	22.3% [20.9, 23.9]	21.7% [18.4, 25.4]	24.3% [18.9, 30.6]	22.5% [21.4, 23.6]	19.3% [17.9, 20.8]
Talk about light cigarettes	18.1% [17.0, 19.3]	18.3% [17.1, 19.6]	17.9% [16.4, 19.5]	13.8% [12.1, 15.8]	17.8% [15.6, 20.1]	17.2% [15.6, 18.9]	20.9% [19.4, 22.6]
Talk about becoming a friend of ethnic communities	10.5% [9.8, 11.2]	9.5% [8.6, 10.6]	11.4% [10.6, 12.3]	7.9% [5.9, 10.5]	12.2% [9.8, 15.0]	10.7% [9.8, 11.6]	10.4% [9.4, 11.6]
Inside of a body and damage	15.3% [14.2, 16.5]	15.7% [14.1, 17.4]	14.9% [13.6, 16.3]	15.3% [11.9, 19.5]	13.5% [10.8, 16.8]	16.3% [14.7, 17.9]	14.6% [13.3, 15.9]
End with word "truth"	42.6% [40.8, 44.5]	43.9% [41.5, 46.2]	41.4% [39.4, 43.3]	38.8% [35.9, 41.9]	38.8% [34.8, 43.0]	39.9% [37.5, 42.4]	49.4% [47.2, 51.5]
"Do you smell smoke?"	4.5% [4.0, 5.1]	4.3% [3.7, 4.9]	4.7% [4.1, 5.4]	3.4% [2.6, 4.3]	5.4% [3.5, 8.1]	4.1% [3.5, 4.8]	5.4% [4.7, 6.1]
Any of the above	65.5% [64.2, 66.9]	65.3% [63.4, 67.1]	65.8% [63.9, 67.5]	62.0% [59.6, 64.4]	65.2% [58.6, 71.3]	66.4% [64.4, 68.4]	65.5% [62.9, 68.0]

Notes: Brackets contain the 95 percent confidence intervals.

Table 3.9 Exposure to Pro-tobacco Media

	See tobacco ads on the Internet¹	See actors using tobacco²	See tobacco ads in sport/community events³
Middle School			
Overall	35.0% [32.6, 37.4]	76.7% [73.8, 79.3]	41.4% [38.4, 44.3]
Female	37.8% [34.5, 41.2]	74.9% [71.3, 78.2]	40.8% [37.2, 44.4]
Male	32.2% [29.4, 35.2]	78.5% [75.6, 81.1]	42.0% [38.6, 45.4]
Asian/PI	35.0% [29.7, 40.7]	75.1% [71.0, 78.8]	35.5% [31.7, 39.5]
African American	37.5% [29.9, 45.8]	76.6% [68.3, 83.2]	43.2% [36.5, 50.1]
Hispanic/Latino(a)	36.0% [32.9, 39.1]	78.9% [75.6, 81.8]	46.4% [43.4, 49.5]
Caucasian	33.1% [29.0, 37.4]	74.4% [71.6, 77.1]	35.6% [30.4, 41.2]
Non-current Smoker	34.1% [31.7, 36.5]	75.9% [73.0, 78.6]	40.8% [37.9, 43.8]
Current Smoker	50.7% [44.5, 56.9]	88.6% [82.6, 92.8]	53.2% [45.5, 60.8]
High School			
Overall	38.0% [36.7, 39.4]	85.0% [84.1, 85.8]	44.9% [43.4, 46.5]
Female	40.3% [38.6, 42.0]	85.4% [84.1, 86.6]	45.6% [44.0, 47.3]
Male	35.7% [34.2, 37.3]	84.5% [83.2, 85.7]	44.2% [42.3, 46.2]
Asian/PI	38.8% [35.8, 41.8]	84.7% [83.0, 86.3]	42.3% [40.4, 44.3]
African American	41.1% [35.1, 47.4]	86.9% [83.2, 89.9]	44.8% [40.5, 49.2]
Hispanic/Latino(a)	41.0% [39.2, 42.8]	85.0% [84.0, 86.0]	48.4% [46.4, 50.3]
Caucasian	33.3% [32.0, 34.7]	85.0% [83.5, 86.3]	40.4% [38.4, 42.4]
Non-current Smoker	37.9% [36.4, 39.3]	84.5% [83.6, 85.3]	44.2% [42.6, 45.8]
Current Smoker	39.3% [36.1, 42.7]	88.1% [85.7, 90.2]	49.4% [46.6, 52.2]

Notes: Brackets contain the 95 percent confidence intervals.

¹ Q48. When you are using the Internet, how often do you see ads for tobacco products? (Percent Responding "Most of the time" or "Some of the time")² Q49. When you watch TV or go to movies, how often do you see actors using tobacco? (Percent Responding "Most of the time" or "Some of the time")³ Q75. When you go to sports events, fairs or community events, how often do you see advertisements for cigarettes or chewing tobacco? (Percent Responding "A lot" or "Sometimes")

Table 3.10 Tobacco Related Items

	Bought or received tobacco related items last year¹ ("No")	Would wear or use tobacco related items² ("Definitely Not")
Middle School		
Overall	88.6% [86.4, 90.5]	55.8% [51.5, 60.0]
Female	90.2% [88.1, 92.0]	61.1% [56.3, 65.8]
Male	87.0% [84.0, 89.5]	50.5% [46.4, 54.6]
Asian/PI	91.1% [86.0, 94.5]	62.5% [56.6, 68.0]
African American	86.4% [81.3, 90.3]	56.0% [50.4, 61.6]
Hispanic/Latino(a)	88.1% [85.9, 90.0]	50.8% [47.8, 53.9]
Caucasian	88.9% [83.6, 92.6]	60.8% [52.5, 68.5]
Non-current Smoker	90.5% [88.6, 92.2]	58.1% [54.1, 62.0]
Current Smoker	53.5% [44.3, 62.4]	20.5% [15.2, 27.1]
High School		
Overall	85.6% [84.6, 86.5]	38.9% [37.4, 40.4]
Female	88.5% [87.2, 89.7]	44.2% [42.4, 46.0]
Male	82.8% [81.1, 84.3]	33.7% [32.0, 35.4]
Asian/PI	89.1% [87.0, 90.9]	45.5% [42.9, 48.1]
African American	89.5% [86.3, 92.0]	40.7% [35.3, 46.4]
Hispanic/Latino(a)	85.1% [83.8, 86.3]	37.2% [35.5, 38.9]
Caucasian	85.4% [84.2, 86.5]	38.6% [36.7, 40.7]
Non-current Smoker	89.5% [88.6, 90.3]	42.2% [40.8, 43.7]
Current Smoker	62.1% [59.7, 64.6]	18.9% [16.1, 22.1]

Notes: Brackets contain the 95 percent confidence intervals.

¹ Q50. During the past 12 months, did you buy or receive anything that has a tobacco company name or picture (logo) on it?² Q51. Would you ever use or wear something that has a tobacco company name or picture (logo) on it such as a lighter, T-shirt, hat or sunglasses?

Table 3.11 Belief that Majority of Peers Do Not Use Tobacco

Grade	Overall	Asian/PI	African American	Hispanic/Latino(a)	Caucasian
6 th	56.0% [49.1, 62.7]	65.7% [51.0, 78.0]	52.6% [30.0, 74.1]	52.2% [42.5, 61.7]	61.6% [53.2, 69.4]
7 th	49.2% [39.7, 58.7]	58.4% [47.0, 68.9]	52.8% [33.4, 71.4]	37.0% [30.5, 44.1]	64.4% [51.3, 75.7]
8 th	40.0% [33.1, 47.2]	35.3% [25.8, 46.2]	37.1% [27.3, 48.2]	34.0% [29.3, 39.1]	49.7% [35.2, 64.3]
9 th	32.4% [29.5, 35.5]	46.4% [35.7, 57.4]	32.7% [22.2, 45.2]	27.5% [23.2, 32.2]	36.6% [31.3, 42.3]
10 th	29.9% [27.4, 32.6]	36.3% [29.2, 44.1]	30.3% [23.4, 38.2]	25.7% [23.3, 28.2]	33.2% [28.2, 38.7]
11 th	31.0% [27.9, 34.2]	34.3% [28.5, 40.6]	22.5% [16.3, 30.2]	24.7% [21.6, 28.0]	39.8% [35.1, 44.6]
12 th	32.6% [29.5, 35.8]	36.5% [29.4, 44.2]	26.9% [17.6, 38.7]	25.7% [21.4, 30.6]	36.8% [32.3, 41.4]
Middle School	46.8 [39.5, 54.3]	52.3 [41.5, 62.8]	46.2 [36.0, 56.8]	38.9 [33.7, 44.3]	57.8 [45.7, 69.0]
High School	29.9 [27.0, 33.0]	37.8 [31.8, 44.2]	31.7 [25.9, 38.1]	25.3 [22.6, 28.2]	33.4 [27.6, 39.7]
Total	33.2% [31.0, 35.4]	39.2% [35.0, 43.6]	30.2% [25.3, 35.6]	27.5% [25.6, 29.5]	38.9% [35.0, 42.9]

Note: Brackets contain the 95 percent confidence intervals.

Table 3.12 Received Information About Tobacco at School During the Last Year

Grade	Overall	Asian/PI	African American	Hispanic/Latino(a)	Caucasian
6th	80.4% [74.8, 85.0]	83.5% [72.1, 90.8]	87.0% [74.6, 93.9]	75.6% [69.5, 80.8]	87.4% [78.3, 93.0]
7th	81.6% [77.3, 85.2]	89.8% [79.5, 95.3]	72.0% [55.0, 84.4]	78.4% [73.7, 82.4]	87.8% [80.8, 92.4]
8th	78.1% [74.6, 81.2]	79.7% [73.1, 85.1]	77.9% [64.9, 87.1]	76.5% [72.3, 80.2]	80.4% [74.7, 85.1]
9th	76.6% [73.9, 79.0]	76.3% [66.3, 84.1]	79.5% [69.1, 87.1]	77.0% [74.9, 78.9]	75.2% [69.5, 80.1]
10th	66.8% [63.2, 70.1]	66.4% [55.9, 75.5]	63.1% [55.9, 69.8]	66.2% [61.5, 70.5]	68.1% [64.1, 71.9]
11th	48.9% [46.4, 51.4]	50.2% [44.8, 55.6]	57.1% [50.1, 63.8]	50.4% [46.4, 54.5]	43.6% [39.1, 48.1]
12th	49.4% [47.1, 51.7]	52.3% [47.6, 56.9]	53.1% [45.6, 60.5]	53.0% [49.9, 56.1]	42.5% [39.5, 45.6]
Middle School	79.9 [76.5, 83.0]	84.4 [77.7, 89.4]	78.5 [70.2, 85.0]	77.0 [73.5, 80.2]	84.5 [79.6, 88.4]
High School	61.6 [59.7, 64.1]	63.9 [60.4, 67.2]	63.9 [58.3, 69.1]	63.1 [60.5, 67.2]	59.0 [54.7, 63.3]
Total	64.1% [62.3, 65.8]	64.2% [59.9, 68.2]	66.2% [62.5, 69.7]	65.4% [63.4, 67.4]	61.0% [57.9, 64.0]

Note: Brackets contain the 95 percent confidence intervals.

Table 3.13 Tobacco Information Helpful

Grade	Overall	Asian/PI	African American	Hispanic/Latino(a)	Caucasian
6th	93.7% [91.1, 95.6]	97.3% [89.6, 99.4]	87.4% [72.3, 94.9]	92.8% [90.0, 94.9]	95.7% [90.1, 98.2]
7th	91.0% [88.6, 92.3]	95.7% [90.9, 98.0]	89.6% [79.0, 95.2]	89.4% [85.7, 92.2]	91.9% [88.7, 94.2]
8th	87.1% [84.7, 89.3]	87.4% [81.5, 91.5]	89.1% [78.8, 94.8]	86.4% [81.1, 90.3]	87.3% [82.3, 91.0]
9th	83.1% [81.0, 85.1]	88.1% [83.8, 91.4]	87.4% [79.1, 93.0]	84.4% [82.4, 86.3]	78.4% [74.5, 81.8]
10th	74.4% [71.0, 77.5]	81.6% [74.2, 87.2]	84.1% [78.1, 88.7]	79.2% [74.3, 83.3]	62.9% [56.9, 68.6]
11th	67.7% [64.9, 70.4]	77.8% [69.9, 84.1]	74.3% [66.4, 80.8]	72.7% [68.7, 76.4]	52.1% [48.2, 56.1]
12th	66.4% [63.5, 69.1]	74.7% [68.1, 80.4]	76.3% [66.2, 84.1]	74.7% [70.6, 78.4]	51.5% [48.3, 54.7]
Middle School	90.2 [88.4, 91.7]	92.7 [88.4, 95.5]	89.4 [84.9, 92.7]	89.0 [85.8, 91.6]	91.2 [88.3, 93.5]
High School	76.0 [65.4, 83.8]	81.1 [77.6, 84.2]	83.2 [78.0, 87.4]	80.6 [78.1, 82.8]	65.2 [61.5, 68.8]
Total	77.4% [75.6, 79.1]	83.2% [80.7, 85.5]	82.9% [79.5, 85.9]	81.0% [79.2, 82.6]	68.5% [64.8, 72.1]

Note: Brackets contain the 95 percent confidence intervals.

Table 3.14 Tobacco Lesson Content

	Teacher/Guest Speaker¹	Assembly / Event²	Why People Smoke³	Smoking Prevalence⁴	Physical Harm⁵	Second Hand Smoke⁶
Middle School						
Overall	60.4% [54.5, 66.0]	54.5% [47.9, 60.9]	52.6% [47.8, 57.4]	38.8% [34.8, 43.1]	65.2% [60.5, 69.6]	51.1% [46.5, 55.7]
Female	63.7% [58.1, 69.1]	57.1% [48.7, 65.1]	53.6% [49.0, 58.2]	37.5% [33.5, 41.7]	68.2% [64.0, 72.2]	51.1% [45.9, 56.2]
Male	57.1% [50.5, 63.3]	51.9% [46.4, 57.4]	51.6% [46.0, 57.2]	40.1% [35.4, 45.0]	62.1% [56.6, 67.3]	51.1% [46.3, 55.9]
Asian/PI	63.4% [56.3, 69.9]	58.2% [49.2, 66.6]	61.7% [53.9, 69.0]	40.7% [35.1, 46.6]	71.5% [64.7, 77.4]	52.7% [45.4, 59.9]
African American	57.1% [47.1, 66.5]	47.0% [39.1, 54.9]	51.7% [42.1, 61.1]	39.5% [30.1, 49.8]	59.5% [53.2, 65.4]	48.9% [41.5, 56.2]
Hispanic/Latino(a)	56.7% [52.0, 61.4]	50.9% [45.2, 56.6]	50.1% [46.0, 54.2]	36.5% [33.0, 40.1]	62.2% [57.4, 66.7]	48.2% [43.7, 52.8]
Caucasian	67.8% [56.5, 77.4]	60.1% [50.0, 69.4]	55.1% [47.8, 62.2]	42.6% [35.5, 50.0]	70.8% [65.4, 75.6]	56.6% [49.0, 63.9]
Non-current Smoker	60.8% [54.6, 66.6]	54.9% [48.2, 61.4]	53.2% [48.4, 58.0]	39.0% [34.9, 43.4]	66.0% [61.3, 70.4]	51.4% [46.8, 56.0]
Current Smoker	54.1% [47.0, 61.0]	47.5% [37.0, 58.2]	44.2% [34.9, 53.8]	35.2% [28.3, 42.9]	50.3% [41.7, 59.0]	45.9% [37.8, 54.2]
High School						
Overall	35.1% [33.0, 37.2]	26.2% [23.7, 28.9]	32.8% [30.6, 35.1]	21.0% [19.3, 22.9]	43.4% [41.0, 45.8]	37.5% [35.2, 39.9]
Female	35.0% [32.9, 37.1]	25.0% [22.7, 27.4]	32.4% [30.3, 34.6]	19.2% [17.5, 21.1]	44.5% [42.0, 47.1]	37.7% [35.4, 40.0]
Male	35.2% [32.8, 37.6]	27.5% [24.4, 30.8]	33.2% [30.2, 36.3]	22.8% [20.6, 25.2]	42.3% [39.5, 45.1]	37.3% [34.5, 40.2]
Asian/PI	36.1% [33.5, 38.7]	28.4% [24.8, 32.3]	38.0% [33.8, 42.4]	23.8% [21.3, 26.4]	45.9% [41.1, 50.8]	40.5% [36.0, 45.2]
African American	39.7% [33.7, 46.1]	31.6% [24.9, 39.1]	34.0% [28.1, 40.5]	24.7% [19.4, 30.9]	43.8% [37.1, 50.8]	41.1% [34.7, 47.9]
Hispanic/Latino(a)	36.7% [34.3, 39.2]	27.1% [25.0, 29.4]	33.9% [31.6, 36.3]	22.0% [19.8, 24.4]	45.3% [42.4, 48.2]	40.1% [37.2, 43.1]
Caucasian	30.6% [27.5, 33.9]	22.3% [19.2, 25.7]	29.2% [25.7, 32.8]	17.0% [14.7, 19.6]	39.7% [36.4, 43.0]	31.9% [29.1, 34.8]
Non-current Smoker	36.0% [33.9, 38.1]	26.3% [23.9, 28.9]	33.5% [31.1, 36.0]	21.0% [19.1, 23.0]	44.5% [42.1, 47.0]	38.5% [36.1, 40.9]
Current Smoker	29.1% [26.2, 32.2]	25.0% [20.7, 29.8]	28.1% [25.2, 31.2]	21.2% [18.1, 24.6]	36.1% [32.1, 40.2]	31.0% [27.3, 34.9]

Notes: Brackets contain the 95 percent confidence intervals.

¹ Q61. During the last year (12 months), did your teacher or a guest speaker (for example, a nurse or someone from your community) talk to your class about NOT using tobacco?² Q62. During the last year (12 months), did you go to a school assembly or event about the harmful effects of tobacco use?³ Q63. During the last year (12 months), did any of your teachers talk about the reasons why people your age smoke or do NOT smoke?⁴ Q64. During the last year (12 months), did any of your teachers talk about how many people your age do NOT smoke?⁵ Q65. During the last year (12 months), did any of your teachers talk about the effects of cigarette smoking on your body?⁶ Q66. During the last year (12 months), did any of your teachers talk about the effects of second-hand smoke?

Table 3.15 Knowledge about Deleterious Consequences of Tobacco Use

	Smoking and Asthma¹	Tobacco Addiction²	Second Hand Smoke and Lung Cancer³
Middle School			
Overall	66.4% [64.1, 68.6]	46.7% [43.5, 50.0]	64.8% [60.7, 68.7]
Female	67.6% [65.1, 69.9]	51.4% [47.7, 55.2]	64.6% [60.0, 69.0]
Male	65.2% [61.6, 68.6]	42.1% [38.4, 45.9]	65.0% [60.7, 69.0]
Asian/PI	65.8% [61.1, 70.2]	49.5% [42.9, 56.2]	65.7% [59.5, 71.5]
African American	63.5% [54.6, 71.5]	49.9% [39.4, 60.3]	63.7% [56.3, 70.6]
Hispanic/Latino(a)	66.6% [63.5, 69.5]	48.9% [45.8, 51.9]	60.7% [57.3, 64.1]
Caucasian	67.0% [62.5, 71.3]	40.5% [36.5, 44.6]	71.9% [66.7, 76.5]
Non-current Smoker	67.0% [64.7, 69.1]	47.9% [44.5, 51.3]	65.7% [61.6, 69.7]
Current Smoker	57.7% [50.9, 64.2]	23.6% [17.9, 30.5]	49.2% [41.8, 56.6]
High School			
Overall	76.1% [74.8, 77.4]	35.3% [33.7, 36.9]	73.3% [71.9, 74.6]
Female	79.1% [77.7, 80.5]	36.9% [35.0, 38.8]	73.8% [72.1, 75.5]
Male	73.1% [71.6, 74.5]	33.6% [31.7, 35.6]	72.7% [70.9, 74.5]
Asian/PI	75.3% [73.2, 77.3]	38.2% [34.3, 42.3]	77.9% [75.3, 80.3]
African American	79.7% [75.6, 83.2]	33.7% [28.6, 39.1]	75.6% [71.6, 79.2]
Hispanic/Latino(a)	74.1% [72.6, 75.6]	39.6% [37.9, 41.2]	68.1% [66.5, 69.7]
Caucasian	78.4% [76.6, 80.1]	27.9% [26.0, 29.9]	78.5% [77.0, 79.9]
Non-current Smoker	77.5% [76.1, 78.9]	36.1% [34.5, 37.8]	74.5% [73.0, 94.0]
Current Smoker	67.8% [63.9, 71.5]	29.7% [27.6, 32.0]	66.0% [62.7, 69.0]

Notes: Brackets contain the 95 percent confidence intervals.

¹ Q91. Smoking cigarettes makes asthma worse.² Q92. Teenagers are too young to get addicted to tobacco.³ Q94. Breathing smoke from someone else's cigarette can cause lung cancer.

Table 3.16 Awareness of Tobacco Quitting Programs at School

	Trained Peer Students¹ (% “Yes”)	Cessation Classes for Students² (% “Yes”)
Middle School		
Overall	51.0% [48.6, 53.4]	13.0% [9.7, 17.2]
Female	49.4% [45.7, 53.1]	9.2% [5.8, 14.4]
Male	52.6% [49.1, 56.2]	16.4% [12.8, 20.9]
Asian/PI	52.8% [47.3, 58.3]	12.3% [5.5, 23.2]
African American	60.6% [51.5, 69.0]	17.8% [8.8, 32.6]
Hispanic/Latino(a)	51.2% [48.6, 53.7]	13.8% [9.6, 19.4]
Caucasian	48.5% [42.9, 54.0]	10.6% [6.5, 16.6]
Non-current Smoker	51.6% [49.1, 54.1]	12.3% [8.8, 16.9]
Current Smoker	40.6% [31.3, 50.6]	19.3% [11.7, 30.1]
High School		
Overall	51.4% [49.5, 53.3]	32.9% [27.3, 39.0]
Female	51.3% [49.1, 53.5]	31.9% [25.2, 39.5]
Male	51.5% [48.9, 54.0]	33.8% [28.7, 39.4]
Asian/PI	56.5% [54.4, 58.5]	31.5% [24.9, 39.0]
African American	53.5% [49.5, 57.4]	37.1% [27.8, 47.5]
Hispanic/Latino(a)	53.3% [50.2, 56.5]	35.3% [29.4, 41.8]
Caucasian	45.8% [43.4, 48.2]	28.9% [20.6, 38.9]
Non-current Smoker	52.3% [50.2, 54.3]	33.1% [27.4, 39.4]
Current Smoker	45.9% [42.7, 49.1]	32.1% [26.3, 38.5]

Notes: Brackets contain the 95 percent confidence intervals.

¹ Q70. At your school, can students your age be trained to help students who want to quit using tobacco?² Q71. Does your school have any special groups or classes for students who want to quit using tobacco?

Table 3.17 Beliefs about Tobacco Use, Second Hand Smoke, and Media Exposure among Current Smokers

	Students Reporting Current Smoking	
	Middle School	High School
Anti-smoking Social Perceptions		
Low	12.5% [9.6, 16.2]	25.2% [23.6, 26.9]
Medium	2.7% [1.7, 4.4]	10.4% [9.5, 11.3]
High	2.5% [1.6, 4.1]	8.2% [7.3, 9.3]
Perceived Negative Health Consequences from Smoking		
Low	10.5% [7.9, 13.8]	26.4% [24.7, 28.3]
Medium	5.3% [3.6, 7.8]	15.6% [13.9, 17.5]
High	1.3% [0.7, 2.2]	5.8% [5.1, 6.6]
Exposure to Second Hand Smoke		
Low	1.3% [0.8, 2.1]	4.9% [4.3, 5.5]
Medium	6.9% [4.6, 10.2]	16.4% [14.0, 19.2]
High	19.8% [15.5, 25.0]	34.6% [32.9, 36.3]
Anti-tobacco Industry Beliefs		
Low	7.0% [5.1, 9.4]	18.4% [17.3, 19.5]
Medium	4.6% [2.9, 7.2]	13.3% [11.2, 15.7]
High	4.1% [2.3, 7.1]	11.0% [9.8, 12.3]
Anti-tobacco Media Exposure		
Low	5.3% [3.7, 7.7]	14.3% [13.0, 15.8]
Medium	4.4% [2.8, 6.7]	12.9% [11.5, 14.3]
High	8.2% [5.4, 12.2]	17.8% [15.2, 20.8]
Pro-tobacco Media Exposure		
Low	2.6% [1.5, 4.5]	10.1% [8.6, 11.8]
Medium	2.5% [1.5, 4.2]	9.8% [8.1, 11.7]
High	7.6% [5.7, 10.0]	16.0% [14.7, 17.4]
Recall of Anti-tobacco TV Messages		
Low	4.4% [3.1, 6.3]	13.3% [12.2, 14.5]
Medium	7.4% [5.1, 10.6]	16.7% [15.1, 18.4]
High	4.8% [3.1, 7.6]	14.6% [12.4, 17.0]

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CHAPTER 4: TEACHER LEVEL DESCRIPTIVE DATA

CHAPTER HIGHLIGHTS

- The majority of the teachers who were surveyed (95 percent) do not currently smoke and are supportive of tobacco-free school policies.
- Roughly a quarter of all teachers, and nearly two-thirds of science, health, and physical education teachers, reported providing some kind of tobacco use prevention education (TUPE) in the last year; these figures are lower than corresponding figures earlier in the 2001-2010 decade.
- Some teachers are unclear about their role in tobacco use prevention education and the extent of expectations for such education. Over half of science, health, and physical education teachers think that the *district* expects them to provide TUPE lessons, and more than sixty percent believe that their *school* administration expects them to do so. Most teachers who have provided some TUPE lessons report experiencing moderate to high support for doing so.
- Although half of health, science, and PE teachers have mainstreamed tobacco use prevention into their teaching, they continue to rely heavily on conventional teaching methods such as lectures rather than on more interactive methods, such as students role-playing the act of refusing a cigarette. They also continue to focus disproportionately on the physical consequences of tobacco use, even though other topics, such as youth tobacco prevalence, are likely to have more impact on student tobacco use.
- More than 80 percent of TUPE-eligible teachers report having received at least one full day of in-service TUPE training. Teachers receiving this training have reported significantly increased confidence in their preparedness to teach TUPE lessons; however, many teachers are *not*

using or are not aware of specific published model tobacco-use-prevention curricular programs.

- Teachers report lack of time as the chief barrier to providing TUPE; another reported barrier is that TUPE is not a mandated part of their standard curriculum.
- Teachers in both middle schools and high schools reported more than 300 percent increases in student access to on-campus tobacco use cessation resources relative to rates reported in 2005-2006. This was not accompanied by increased referrals of student smokers to the state's 800-NO-BUTTS cessation helpline, however, in part because nearly half of TUPE-trained high school teachers reported being unaware that the state's helpline was available to student smokers.

Introduction

This chapter reviews descriptive data obtained from the teachers of the classes of students who participated in the student survey. The information was obtained using an anonymous questionnaire. It queried the teachers about their experience with tobacco use, their motivation to participate in tobacco use prevention education, and some detailed information about the specific content and strategies that characterize their personal involvement in tobacco use prevention education.

Lifetime and current rates of smoking reported by teachers

California teachers, as a group, report low rates of current smoking. The total number of teachers invited to participate was 973. Eight hundred and seventy-six teachers responded to the survey (90.0 percent response rate), of which 744 were high school teachers (89.1 percent response rate) and 132 were middle school teachers (95.7 percent response rate). Of these, 820 reported their smoking status. Slightly more of the respondents were men (52 percent) than women (48 percent). Men predominated in the

high schools (56 percent) whereas women predominated in the middle schools (71.4 percent). The teachers reported an average tenure at their school of 9.7 years, ranging from brand new to over 47 years. Eighty-six percent of the teachers identified their schools as high schools; 14 percent identified their schools as middle schools or junior high schools.

Only 51 of these teachers reported smoking any cigarettes in the last month (5.8 percent). Current definitions of adult "current smoking," (current smokers include persons who reported smoking at least 100 cigarettes in their lives and who reported, at the time of survey, that they currently smoked every day or on some days in the last month. Using this definition, the prevalence rate of current smoking among teachers was 5.2 percent. Six teachers who had not smoked at least 100 cigarettes in their lifetime now reported having smoked "some days" in the last month. The good news is that 75.8 percent of teachers who had reported having smoked at least 100 cigarettes in their lifetime now reported not smoking on even a single day in the last month. This represents a higher abstinence rate among ever smokers than has been previously reported for U.S. adults, where the abstinence rate among ever smokers is now around 50 percent (CDC, 2004).

Teacher support for school-wide and school staff no-tobacco use policy

Teachers expressed high support for their school's school-wide no-tobacco use policy. More than eighty-six percent (86.9 percent) expressed the strongest support possible. Not surprisingly, support for their school's school-wide policy dipped for the few teachers who smoked, but 51.8 percent of the nineteen "everyday" smokers and 55.0 percent of the thirty-one "occasional" smokers (smoking some days each month) still expressed the strongest support possible. The pattern of results was similar for teachers' support of their school staff-specific no-tobacco use policy.

Teacher reports of past experience teaching TUPE lessons, of administration support for teaching TUPE lessons

Among all teachers surveyed, 23.6 percent [95% CI: 18.9 – 29.0] reported having taught some kind of tobacco use prevention lesson during the last school year, which is not significantly different from the 25.5 percent of teachers in 2005-2006 who reported having taught a tobacco use prevention lesson during the last school year. Sampled middle school teachers were more than twice as likely than sampled high school teachers to report having taught some kind of tobacco use prevention lesson either during the last year or during the current year (OR = 2.6; 95% CI: 1.68 – 4.15). Physical education and health teachers in high school as well as physical education, health, and science teachers in middle school are those particularly expected to teach tobacco lessons (collectively referred to as “TUPE-eligible teachers”). Among these teachers, 63.1 percent [95% CI: 46.8 - 76.9] reported having taught a tobacco use prevention lesson during the last year. In the 2005-2006 cycle, 43.8 percent [95% CI: 32.0 – 56.4] of TUPE-eligible teachers reported having taught a tobacco use prevention lesson during the last school year, which was less than the 63.6 percent recorded for the same question in 2003-2004 or the 72.8 percent recorded for the same question in 2001-2002.

A potential influence on teachers' inclination to teach tobacco use prevention was the degree to which they said that school and district administrators expected teachers to teach tobacco use prevention lessons. The percentage of health education, physical education, and science teachers reporting that **district administrators** expected them to teach tobacco use prevention lessons was 52.7 percent (95% CI: 41.6, 63.5). Thirty-four percent reported that district administrators did NOT expect them to teach tobacco use prevention lessons; an additional 12.8 percent reported not knowing whether the district administrators expected them to teach tobacco use prevention lessons. In 2005-2006, 60.1 percent of health education, physical education, and science teachers had reported that district administrators expected them to teach tobacco use prevention

lessons, which is not significantly different from 52.7 percent. Health education, physical education, and science teachers who reported that district administrators expected them to teach tobacco use prevention lessons were more than forty times more likely to report having taught a tobacco use prevention lesson in the previous year than teachers who reported that district administrators did not have this expectation (OR = 43.0, 95% CI: 7.17 – 258.16). Teachers who reported that district administrators expected them to teach tobacco use prevention lessons were more than five times as likely (OR = 5.56, 95% CI: 3.36 – 9.18) to report having infused their curriculum with tobacco use prevention lessons than other teachers.

Sixty percent (60.5%) of health education, physical education, and science teachers reported that school site administrators expected them to include tobacco use prevention lessons in their subjects. However, 39.5 percent did not report an expectation to include such lessons in their subjects. Teachers who reported that their school administrator expected them to teach tobacco use prevention lessons were over seventy times more likely to report having taught a tobacco use prevention lesson in the previous year than teachers who reported that their school site administrator did not have this expectation (OR = 77.68; 95% CI: 11.7 – 40.7). Teachers who reported that their school site administrator expected them to teach tobacco use prevention lessons were nearly five-fold more likely (OR = 4.91; 95% CI: 36.30 – 166.26) to report having infused their curriculum with tobacco use prevention lessons than teachers who reported no such expectation.

The teachers who had taught tobacco use prevention lessons in the current year or in the last school year responded to four-point Likert-scale questions about the level of administrator support for tobacco use prevention education that they had experienced. These perceived administrator support questions were separate from the questions about what the teachers thought the administrators expected teachers to teach. Choices for the support questions ranged from "a great deal [of support]" to "not at all." In

general, the teachers reported a moderately high level of administrator support. Sixty percent (59.5 percent) of TUPE-experienced teachers reported getting either moderate or a great deal of support for tobacco use prevention education from district administrators. Sixty-six percent reported receiving moderate or a great deal of support from school site administrators. As discussed in Chapter 1, district administrators were district-level staff responsible for TUPE, and school site administrators were either the principal, assistant principal, or vice principal at the school.

Infusion of regular curriculum with TUPE messages

Just one half (49.2 percent) of health, science, and PE teachers reported infusing their respective subjects with tobacco use prevention lessons. This is down from the 69.1 percent who reported that they infused their respective subjects with tobacco use prevention lessons in 2005-2006. Middle school and high school teachers were about equally likely (51.2 percent and 42.6 percent, respectively) to report infusing their curriculum with tobacco control lessons. These rates are lower than the corresponding rates reported in 2005-2006 (63.9 percent and 70.9 percent respectively) but comparable to national rates reported by NCI (NCI, 2001) and comparable to what they were in California in the 2001-2002 and 2003-2004 IETP surveys. Nationally, 55 percent of middle school teachers and 47 percent of high school teachers reported infusing their subject matter with tobacco control lessons (NCI, 2001).

Students' lack of interest in tobacco use prevention education could adversely affect teachers' inclination to infuse their subject matter with tobacco control lessons. Fortunately, most teachers (91.5 percent) reported that their students were "moderately" or "very" interested in the tobacco use prevention lessons that they had taught in the last year.

Curriculum Content

Several questions were designed to gather information about the tobacco use prevention curriculum used by the 198 teachers who taught TUPE lessons during the previous (2006-07) school year. Table 4.1 shows in rank-order of popularity the topics that were included in their lessons.

The most popular topic for teachers to discuss in their tobacco use prevention lessons was: "Effects of tobacco on physical health." The popularity of this topic stretches back to the earliest days of the first concerted attempts to get young people to not use tobacco (Thompson, 1978). Teachers' continuing preference for this topic seems inconsistent with the paucity of scientific evidence for its utility in dissuading young people from beginning the tobacco use habit (USDHHS, 1994). By contrast, teaching refusal skills and correcting high estimates of peer smoking rates have been found to be consistently helpful in reducing youth smoking (USDHHS, 1994), and yet are discussed only 52-56 percent as often as the effects of tobacco on physical health.

The second most popular topic was the influence of tobacco advertising and marketing. This is probably a topic that teachers enjoy in part because exposure to advertising is so ubiquitous in the U.S. and yet its influence on behavior is seldom discussed in traditional courses. "Effects of secondhand smoke" is another popular topic. Teachers may like discussing secondhand smoke in class in part because most teachers are not smokers themselves and so they can relate more to the documented health effects on non-smokers of exposure to secondhand tobacco smoke. The twelve enumerated topics listed in Table 4.1 were apparently fairly exhaustive, because only 13.9 percent of respondents felt compelled to write in additional topics (see last topic listed in Table 4.1). Twenty-five percent of the write-in topics concerned the cost and economics of tobacco use; another eighteen percent of write-in topics concerned smokeless tobacco use. The remaining write-in topics included a disparate laundry list, including: the ethics

of marketing a product that kills, the addiction process, and the history of tobacco use and tobacco products.

Table 4.1 Major Topics Discussed in Tobacco Use Prevention Lessons, Rank-ordered by Popularity.

Curriculum topic	Prevalence
Effects of tobacco on physical health	77.6% [68.1 – 84.9]
Influence of tobacco advertising and marketing	62.0% [50.8 – 72.2]
Effects of secondhand smoke	58.7% [47.5 – 69.0]
Reasons why young people use tobacco	57.4% [47.6 – 66.7]
Social influences that promote tobacco use	55.6% [46.3 – 64.5]
Social consequences of tobacco use	54.0% [45.0 – 62.8]
Behavioral skills for resisting tobacco offers	43.2% [33.1 – 53.8]
General personal and social skills (including goal-setting, problem-solving, communication skills, assertiveness)	41.9% [32.3 – 52.1]
Statistics on prevalence of youth tobacco use	40.0% [31.2 – 49.4]
How to quit smoking and rates of relapse	26.0% [18.6 – 35.2]
Cigar use: prevalence and dangers	15.8% [10.5– 23.2]
Discussion about other topics, esp. smokeless tobacco use	13.9% [8.7 – 21.5]

Note: Brackets contain the 95 percent confidence intervals

Note2: Number of respondents was 198 teachers with experience teaching tobacco use prevention education classes.

Modes of TUPE Instruction

Teachers who taught tobacco use prevention lessons in the previous school year (2006-2007) were asked if they used the following modalities: classroom discussion, small group activities, lectures, role-playing, and student worksheets. The most popular modality was classroom discussion, with over 91 percent (91.5 percent) of teachers reporting at least some use of this modality. Lectures were the next most popular modality, with more than 75 percent (75.9 percent) saying that they used lectures at least some of the time in conducting their tobacco use prevention lessons.

Surprisingly, relatively little use was made of role-playing, which had been de rigueur in teaching refusal skills and social skills (e.g., Dusenbury et al., 1995) {Hwang, 2004 #423} and is still mentioned in the literature. {Nichols, 2006 #422} Fewer than a third of teachers (32.36 percent) said that they used role-playing when they taught tobacco use prevention. Small group activities (44.6 percent) and student worksheets (35.4 percent) were just slightly more popular than role-playing. As Dusenbury et al. (1995) {Dusenbury, 1995 #438} noted, one of the consistent features of drug abuse prevention programs determined empirically to be effective is the use of educational strategies that were interactive, such as the use of role-playing and small-group activities. Related to this is the consensus that peer-to-peer anti-smoking messages are more effective than teacher-to-student anti-smoking messages. {Campbell, 2008 #432} {Black, 1998 #437} Role-playing and small group activities lend themselves to peer-to-peer interactions more so than didactic teacher lectures or teacher-led classroom discussions. The significant differences observed here in teachers' choice of educational modality between classroom discussions and didactic lectures on the one hand and role-playing and small group exercises on the other are therefore surprising. Future in-service training might be improved by focusing more on training teachers in the use of role-playing and small group exercise to help teachers feel more comfortable with involving their students in the use of these educational strategies.

In-Service Training on Tobacco Use Prevention Education

Among health, physical education, and middle school science teachers – teachers who are often given the responsibility to teach tobacco lessons – over fifty-three percent (53.1 percent) have received some in-service training on tobacco use prevention education in the last five years, which is an increase over the one third who had received some in-service TUPE training in 2001-2002 and the 44.7 percent who received some in-service TUPE training in 2003-2004 and comparable to the 52.5 percent in 2005-2006. Nearly seventeen percent (16.8 percent) reported receiving more than one full day of in-service training, 20.2 percent received exactly one full day, and 63.0 percent received less than one day of in-service training. The proportion of trainees who have had at least one full day of training has remained steady relative to two years ago.

Generally it was only those teachers who had received tobacco use education prevention training who reported feeling well prepared to conduct TUPE lessons. Of health, physical education, and middle school science teachers who reported no in-service training, only 13.3 percent felt they were prepared "a great deal." By contrast, a much higher proportion of teachers who reported having some in-service training believed they were prepared "a great deal" (43.3 percent). Those who reported having at least some in-service training were more likely to report feeling "a great deal" prepared than teachers who reported having received no training (OR = 8.41; 95% CI: 4.33 – 16.37).

Barriers to Teaching Tobacco Use Prevention

All respondents with past experiences in teaching tobacco use prevention education lessons (TUPE-experienced teachers) were asked to review a list of potential barriers to their teaching of tobacco use prevention lessons and to mark those that they thought applied to them. They were also asked to describe additional barriers, as appropriate. Table 4.2 shows the frequency with which TUPE-experienced teachers endorsed each of nine potential barriers. Approximately one fifth (13.3 percent) of these teachers reported that they encountered none of the barriers queried. The most often cited barrier (64.0 percent) to teaching tobacco use prevention lessons was lack of time. The second most common barrier (43.5 percent) cited was that tobacco use prevention was not seen to be a part of the teacher's curriculum. More than a third (38.3 percent) of the respondents cited the fact that TUPE was not assessed as an important student outcome in state-mandated testing. More than a fifth said that lack of adequate training in teaching TUPE lessons was a significant barrier. The remaining choices were mentioned by less than 20 percent of the respondents. These additional choices concerned the availability of appropriate materials and the priority that the district or the school placed on tobacco use prevention. In additional, open-ended, written comments, 14 of the 36 respondents (38.8 percent) who had submitted open-ended responses said either that tobacco use was not a personal priority or that other topics, such as the prevention of illicit drug use and gang violence, were more important priorities.

Table 4.2 List of Major Barriers, Ranked by Frequency of Mention

Major Barriers	Prevalence
Lack of time	64.0% [53.2 – 73.5]
Prevention is not part of my curriculum	43.5% [33.0 – 54.7]
Prevention is not part of outcomes assessed	38.3% [28.7 – 49.0]
I haven't received adequate training	22.3% [14.6 – 32.5]
Lack of adequate instructional materials	18.1% [12.5 – 25.6]
District has not made it a high priority	13.4% [8.9 – 19.8]
None of these barriers	13.2% [8.2 – 20.7]
Prevention is not mandated in my district	10.4% 6.1 – 17.4]
School has not made it a high priority	9.4% [5.5 – 15.6]
Other barriers	6.1% 3.0 – 12.0]

Note: Brackets contain the 95 percent confidence intervals.

Note2. Number of respondents who provided open-ended responses was 36.

School Resources for Tobacco Control

The effectiveness of tobacco control efforts by teachers is affected by the community, and by school tobacco control resources that are available. In general, only a minority of teachers who had ever taught a tobacco use prevention education lesson agreed that key school tobacco control resources were available. For instance, only 18 percent said, "Yes," to the question: "Have you ever received information from your school about where school staff could go if they wanted help in quitting their tobacco use?" There were some differences in perceived resources depending on whether the school was a middle school or high school. For example, 31.3 percent of middle school teachers said "yes" that their school offered an on-campus tobacco use cessation program for students in contrast with 67.7 percent of high school teachers. These figures are much higher than the corresponding figures in the 2005-2006 report (0.0 (zero) percent and 21.9 percent, respectively). Almost three quarters of the teachers (71.9 percent) reported that there was no noticeable change in the availability of TUPE resources compared to the year before. However, almost three quarters of the respondents agreed (74.7 percent) that general campus resources, such as school counselors and other special programs that could help students with personal problems such as a drug abuse problem were available, even if tobacco-specific resources were not.

The TUPE-experienced teachers reported a number of episodic TUPE relevant resources (see Table 4.3). The most frequently cited activities tended to be nationally-recognized activities adopted by many schools across the country, such as Red Ribbon Week (69.3 percent), the ACS adult tobacco use cessation program, the "Great American SmokeOut" (39.8 percent) and the ACS teen education TUPE program, "Teens Kick Ash" (13.2 percent). Other TUPE activities involved student artwork and essays relevant to tobacco use education (45.1 percent and 29.8 percent, respectively). More conventional health education efforts, such as school assemblies (17.2 percent), the offering of smoking cessation programs (20.6 percent) and TUPE health education

partnerships with local health departments (4.3 percent) were also evident. A miscellaneous category with write-in examples was completed by 12.6 percent of the TUPE-experienced teachers. Their examples included several that involved use of the school's public address system to convey anti-tobacco messages and several that involved peer health educators conveying anti-tobacco messages to fellow students.

Table 4.3 List of Episodic School TUPE Resources, Ranked by Frequency of Mention in 2007-2008, Compared to Prevalence Estimates from 2005-2006

Episodic TUPE Resources	2005-2006 Prevalence	2007-2008 Prevalence
Celebrated drug-free week / red ribbon week	64.6% [57.1 – 71.5]	69.3% [60.5 – 76.9]
Displayed anti-tobacco posters (made by students)	42.3% [34.1 – 50.9]	45.1% [36.7 – 53.8]
ACS program: "Great American SmokeOut"	49.6% [40.6 – 58.5]	39.8% [29.8 – 50.8]
Hold a poster, essay (etc.) contest about tobacco use	27.5% [18.5 – 38.8]	29.8% [20.9 – 40.5]
ACS program; "Teens Kick Ash"	13.2% [7.4 – 22.6]	22.5% [15.1 – 32.2]
Offered smoking cessation programs/classes	21.9% [16.2 – 28.9]	20.6% [13.6 – 30]
Tobacco Use Prevention Assembly	14.1% [9.2 – 21.0]	17.2% [10.4 – 27.2]
Other anti-tobacco activity	7.3% [3.9 – 13.1]	12.6% [5.5 – 26.3]
None of the above activities	8.9% [5.0 – 15.4]	5.9% [3.1 – 10.9]
School sponsored an anti-tobacco club	12.3% [7.6 – 19.2]	5.6% [2.9 – 10.4]
Participated in TUPE programs with local health department	7.4% [3.7 – 14.2]	4.3% [2.4 – 7.7]

Note: Brackets contain the 95 percent confidence intervals

The TUPE-experienced teachers' most popular strategies for involving parents in tobacco use prevention are described in table 4.4 and are ranked by the percent of teachers who have used each one. It is difficult for teachers to involve parents meaningfully in anti-tobacco efforts even though they are recognized as important influences on their children's health-related lifestyle choices. With both parents / guardians typically working, they often report not having the time to be involved in their

child's school activities. Teachers are also wary of the possibility of encountering the occasional parent who does not take kindly to having schools teach their children that their parents' tobacco use habit may be a health hazard to their children as well as to themselves (Moolchan & Mermelstein, 2002).

Even though only 34.5 percent of teachers used it, the teachers' most popular strategy for engaging parents in tobacco use prevention activities was to involve them in homework. Various information-sharing strategies were also endorsed, depending on the strategy, by 15-30 percent of the teachers. Less than a tenth of the teachers reported using strategies requiring more active involvement of parents, such as asking selected parent experts to speak professionally on the dangers of tobacco use (5.3 percent) or asking them to serve as judges of poster artwork or of written student essays focusing on anti-tobacco messages (5.7 percent). There is plenty of scientific literature speaking to the importance of parental influences on student tobacco use (e.g., Resnick et al., 1997; Distefan et al., 1998; Cohen et al., 1997; Turner et al., 2004) but the practical barriers to involving them limit their presence in school-based tobacco use education efforts. Only eight TUPE-experienced teachers (4 percent) took advantage of the open-ended response option to suggest additional strategies to involve parents. Besides some idiosyncratic suggestions, there was a consistent thread of involving parents because of their special expertise, as athletes, as scientists, or as cancer survivors.

Table 4.4 List of Strategies Used by Teachers to Involve Parents in TUPE Activities.

Strategies to Involve Parents in TUPE Activities	Prevalence
Involved parents in TUPE-related homework	34.5% [23.0 – 48.2]
TUPE displays / discussions at Open House/ Health Fair or other parent meetings	29.4% [19.6 – 41.7]
Distributed handbook to parents with tobacco-free policy in it	26.6% [18.6 – 36.4]
Provided information to parents about smoking cessation	18.5% [10.1 – 31.4]
Distribute newsletters or educational materials to parents	17.7% [10.8 – 27.7]
Held meetings with parents of student smokers	5.9% [2.2 – 14.7]
Involved parents in school related TUPE activities (e.g., as judges of poster/essay contests)	5.7% [2.6 – 12.1]
Invited parents to be guest speakers on tobacco issues	5.3% [2.3 – 11.8]
Other strategies – please specify	4.2% [1.3 – 12.5]

Note: Brackets contain the 95 percent confidence intervals

Teacher referrals of student smokers to state helpline

Fifteen percent (15.2 percent) of health and PE high school teachers and six percent (6.5 percent) of science, health, and PE middle school teachers reported advertising to their students the availability of the state's 800-NO-BUTTS smoking cessation telephone helpline. Curiously, teacher reports of actual referrals of student smokers to the state helpline in the last year did not differ between high schools and middle schools (2.7 percent versus 2.6 percent, respectively), despite the large difference in prevalence rates between high schools and middle schools. Comparable proportions of high school and middle school teachers said that the reason they did not make any referrals to the state's helpline was that no one who they encountered appeared to need referrals (48 percent and 46.2 percent, respectively). No high school teacher would admit it, but seven percent (7.4 percent) of middle school teachers admitted that the reason they did not make a referral is that they had forgotten the number for the helpline. More concerning, however, is the surprisingly high proportion of science, health, and PE teachers who claimed not to be aware that the state's smoking cessation helpline was available to student smokers (34.3 percent of high school health and PE teachers; 38.2 percent of middle school science, health, and PE teachers). Curiously, when the question was restricted to those high school teachers who had ever received training in the teaching of TUPE lessons, the percent who said that they were not aware of the 800-NO-BUTTS helpline increased to forty-nine percent (49.2 percent). There is clearly a need to increase the salience of the 800-NO-BUTTS helpline in the training that teachers receive. (Sussman & Dent, 2007)

Most Important Risk Factors for Youth Smoking

TUPE-experienced respondents were asked to rate the magnitude of nine specific risk factors that scientific literature has suggested may contribute to youth smoking. Respondents were also invited to write in their own suggestions. The specific question was "To what extent do you think that the following risk factors influence students to use

tobacco?" The response options consisted of a 6-interval Likert scale: "0=Not at all," "1=Very small extent," "2=Small extent," "3=Modest extent," "4=Great extent, and "5=Very great extent."

Table 4.5 shows mean ratings for nine specific risk factors in rank order of mean magnitude. The data indicate that TUPE-experienced teachers rate peer influence as the greatest single influence on youth smoking. Family members' use of tobacco was the second most important influence. The next three influences, all of which can be characterized as features of the adolescent environment, were rated as having roughly comparable impact: pro-smoking messages, availability of tobacco, and use of other illicit drugs.

Teachers agree that knowledge obtained via tobacco use prevention education and student academic performance is a protective factor against adolescent tobacco use. Teachers also acknowledge some influence of socioeconomic and cultural factors on youth smoking. Twenty-one of the respondents wrote in additional suggested influences. Some of the suggestions overlapped with the rated items but two additional themes were touched on, namely emotional well-being as a protective factor and wanting to project an image of rebelliousness and independence as a risk factor. Even those who suggested alternative influences did not rate their importance as high, relative to the previously rated influences. The most noteworthy observation was that these teachers appear to rate the influence of pro-smoking messages in the media as a more significant influence on student tobacco use than exposure to tobacco use prevention education.

Table 4.5 Major Risk / Protective Factors for Youth Tobacco Use

Major risk / protective factors for youth tobacco use	Mean magnitude of influence
Friends' use of tobacco	4.52 [4.37 – 4.70]
Family members' use of tobacco	4.26 [4.06 – 4.46]
Use of other drugs	3.79 [3.64 – 3.94]
Availability of tobacco	3.72 [3.53 – 3.91]
Pro-smoking media messages	3.66 [3.39 – 3.93]
Insufficient tobacco use prevention education	2.76 [2.46 – 3.06]
Performance in school (protective factor)	2.69 [2.46 – 2.91]
Ethnic/cultural background	2.65 [2.42 – 2.88]
Family income (protective factor)	2.48 [2.23 – 2.74]

Note: Brackets contain 95 percent confidence intervals

Note: Response options were – "0=Not at all," "1=Very small extent," "2=Small extent," "3=Modest extent," "4=Great extent", and "5=Very great extent."

Topics for in-service training

For eligible teachers who have not received any TUPE in-service training, professional development or training that covered the basic tenets of tobacco use education as recommended by the CDC (CDC, 1994) or by the U.S. Department of Education appears to improve teacher preparedness to teach TUPE lessons. Teachers who have received TUPE in-service training in the past were asked, "What topics should now be highlighted?" The topics to be highlighted should take advantage of advances in the field and should remedy discrepancies between what teachers currently know and do and what the field suggests they should now know about effective tobacco use prevention education.

A review of teachers' use of published TUPE curricula generally shows that many are **not** relying on the best-accepted published curricula for their TUPE lessons, or, for that matter, on ANY published curricula. The questionnaire included 26 specific TUPE-relevant programs, a 27th item called "Other – please specify" and a 28th option called "None of these." More than 47 percent (47.8 percent) of these TUPE-experienced teachers chose "none of these" as their only answer. The next most popular choice was "Other-please specify," which garnered slightly more than 11 percent recognition (11.6 percent). Twenty-three respondents (11.6 percent) wrote in alternatives, with five volunteering the fact that they had developed their own idiosyncratic program, based on current news, magazine clippings, and news stories. Five other open-ended responses named published health texts by such publishers as Holt Health and Glencoe Health. All remaining open-ended alternatives were idiosyncratic choices, ranging from a Boys and Girls Club educational program to smokeless Saturday school.

Of the specific published programs that were rated, the most often mentioned one was Project Alert (17.3 percent), Too Good for Drugs (8.0 percent), school-specific programs developed by the school (7.2 percent), American Lung Association programs (5.1 percent), American Cancer Society programs (4.5 percent), American Heart Association

programs (3.9 percent), Project Towards no Tobacco Use (2.8 percent), “Tobacco-free”, a program of the Sacramento County Office of Education (2.7 percent). All other specific programs garnered less than 2 percent of the mentions, including some other programs on the list of CDC- or US Department of Education-approved programs.

TUPE-experienced teachers might not know the names of published TUPE curricula because they had not received training to deliver a specific published tobacco use prevention curriculum. In fact, only 24.1 percent of TUPE-experienced teachers reported getting trained to deliver a specific published tobacco use prevention curriculum in the last five years. An additional 7.1 percent simply said that they did not remember if their TUPE training included training to deliver a specific published TUPE program.

For the minority of teachers who did receive professional development training, what was the content of their training? Respondents were queried about five general areas of relevance to tobacco use prevention education and were also given the option to write in a general topic area in which they received training. Table 4.6 lists these areas of professional development training and the median number of hours of training obtained over the last five years as reported by TUPE-experienced teachers. Eight respondents wrote in the name of a specific training. Of these, five attended a training to use the ALERT TUPE program and two attended a training to use the Too Good For Drugs program. These science-based programs should have been subsumed under the rubric, “Science-based prevention & intervention programs.” The TUPE-specific training opportunities were clearly less popular than the more generic youth development trainings, such as training in developmental assets, which may reflect teacher preference, but only a minority of TUPE-experienced teachers appeared to have attended any of these health-related professional development trainings in the last three years. The collected data do not offer enough information to know if these small numbers reflect a preference of teachers to attend other kinds of trainings or if they

reflect difficulties in matching teacher availability with training opportunity. Given the empirical relationship between exposure to TUPE training and teachers feeling confident that they were well-prepared to teach TUPE lessons, it would seem beneficial to find more effective ways than have been tried thus far to expose a higher proportion of TUPE teachers to TUPE-relevant professional development training.

Table 4.6 Major areas of professional development training and average hours of training received

Major area of professional development training	Percent who received training	Median number of hours	# of participants
Developmental assets	23.7% [15.0 – 35.4]	5.5 hours	76
Youth development	21.3% [14.0 – 30.9]	5.5 hours	72
Science-based prevention & intervention programs	13.6% [8.5 – 21.2]	3.6 hours	34
Readiness to quit programs	9.6% [4.9 – 17.8]	2.6 hours	15
Tobacco use cessation programs	9.0% [4.7 – 16.5]	2.2 hours	16
Other: specify	3.5% [1.3 – 8.8]	8.0 hours	8

Note: Brackets contain 95 percent confidence intervals

Summary

Schools have long been the targets of public health advocates for preventing tobacco use onset among children, and for good reason. About 90 percent of California school-age children attend public schools. Public school teachers are highly respected by children and are the most commonly observed adult models for most children other

than their adult family members. Most teachers (86.9 percent) surveyed for this study appear to be supportive of tobacco-free school policies but less than half of all TUPE - eligible teachers feel well-prepared to teach TUPE lessons. Forty-three percent of TUPE-eligible teachers who have received some TUPE training reported feeling well prepared to teach TUPE lessons. Additional training and training on topics unfamiliar to TUPE instructors (such as refusal skills training) would probably help to increase the proportion of TUPE-eligible teachers who felt well-prepared to teach TUPE lessons.

The good news is that very few teachers are current smokers. At a minimum, California's public school students will see little evidence that smoking is popular among their teachers. The impressively low rates of tobacco use by teachers helps to reinforce a message implicit in most tobacco use prevention programs - namely, that cigarette smoking is not normative behavior among adults.

Analytical results suggest a positive association between teachers' perceptions of school-level support and their perception of students' level of interest in TUPE content. This finding implies that it is important for TUPE instruction to have well-publicized support from school and district administrators, to ensure high student interest in TUPE content.

Teachers should be encouraged to educate their students about the typical misrepresentations of pro-smoking messages and about ways in which students can learn to be more critical consumers of commercial messages. Such encouragement should, among other things, include in-service TUPE training that addresses how teachers can combat pro-tobacco media messages.

For already smoking students, teachers need to be better trained to help them to access cessation resources, particularly the state's 1-800-NO-BUTTS cessation helpline. At a minimum, TUPE training programs need to do a better job of highlighting the

accessibility and appropriateness of the state helpline to help adolescent smokers to quit their habit.

Teachers can do more than just model abstinence, but they will need more exposure to training opportunities, more support from district and school personnel, and greater clarity from the state about TUPE being a priority. Probably the most obvious and helpful resource would be the provision of more targeted and more frequent in-service training in how to teach tobacco use prevention education. Chapters 7 and 8 describe some of the school and district level influences that modulate teachers' impact on their students' tobacco use behaviors and attitudes.

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CHAPTER 5: TUPE COMPETITIVE GRANT FUNDING, PROGRAM EXPOSURE, AND STUDENT TOBACCO USE

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CHAPTER 5: TUPE COMPETITIVE GRANT FUNDING, PROGRAM EXPOSURE, AND STUDENT TOBACCO USE

CHAPTER HIGHLIGHTS

- High schools with competitive TUPE grants were more likely than non-grantee high schools to offer cessation services and referral to students, less likely to resort to expulsion for smoking, and more likely to sponsor school-wide anti-tobacco activities.
- High schools with competitive TUPE grants were more likely to use a published TUPE curriculum than non-grantee high schools.
- Teachers in grantee high schools reported substantially higher levels of preparedness to teach tobacco use prevention lessons than their counterparts in non-grantee schools
- High Schools with competitive TUPE grants were more likely to cover smoking cessation and cigar use than non-grantee High Schools. On most topics, however, TUPE grantees and non-grantees did not differ.
- Coordinators in grantee high schools were more likely than their counterparts in non-grantee high schools to report participating in professional training on “Youth development training,” “Science-based prevention training,” “Readiness to quit training,” and “Cessation programs.” About 38 percent of teachers in grantee high schools reported that they participated in Readiness to Quit programs.
- Teachers, coordinators and administrators in grantee high schools all were more likely than their counterparts in non-grantee high schools to report that their school sponsored a special day where students and staff were encouraged to abstain from smoking, held an anti-tobacco assembly and sponsored an anti-tobacco club. According to high school staff, grantee schools provided one or two more school-wide tobacco prevention activities per year, on average, than non-grantee schools.
- TUPE grantee high schools were about three times more likely to have a cessation program for students than non-grantee schools. Teachers in grantee high schools were more likely to report that they referred students to cessation programs than those in non-grantee schools
- Students attending high schools with competitive TUPE grants were more likely to report higher levels of exposure to tobacco prevention education services than students in non-grantee schools. More high school students in grantee than in non-grantee schools reported that they had school lessons about tobacco, that a guest speaker talked to their class about not using tobacco, that they attended a school assembly about the harmful effects of tobacco use, that peer cessation training was available, and that cessation classes existed on campus.
- Grantee high schools were not significantly different from non-grantee high schools on precursors to smoking, such as intention not to smoke one year later, and did not differ in the proportion of students reporting no tobacco use behavior

Introduction

Since 1994, CDE has allocated school-based tobacco use prevention funds to school districts using two different mechanisms – an entitlement program that allocates funds for tobacco use prevention for programs in grades four through eight and a competitive grant program that allocates funds to selected districts for grades 9 through 12.

Because all middle schools received entitlement funds, it was not possible to evaluate whether TUPE funding made a difference in TUPE outcomes in middle school. This chapter therefore focuses on the high school competitive grant program. It examines differences in program implementation, program exposure, student tobacco use, and factors associated with student tobacco use (i.e., precursors) between high schools that were awarded competitive TUPE grants and those that were not awarded such grants.

It is important to note that it is not just schools with competitive TUPE grants that provide tobacco use prevention services to high school students. Most districts in the State receive funding from the Federal Safe and Drug Free Schools Program (Title IV), which requires that schools provide tobacco use prevention services to all students. In addition, lessons about tobacco use are a common component of most health education curricula. Although many schools in California provide tobacco use prevention activities without using TUPE funds, the competitive TUPE program provides the bulk of the funding available for tobacco use prevention and intervention services to high schools in the State.

The investigators examined whether schools with competitive TUPE grants differed from those without such grants in ways that are not directly related to tobacco prevention education activities. Table 5.1 shows the mean demographic characteristics of grantee and non-grantee schools, based on information from the California Basic Educational Data & Statistics (CBEDS) data and from the Academic Performance Index (API) data. Overall, grantee and non-grantee schools are roughly similar in terms of student demographics – student enrollment; the proportion of Asian and Hispanic/Latino students; the proportion of students receiving subsidized meals; parental education

level; and academic achievement test scores. There was one difference, however. There were more African American students in grantee schools than in non-grantee schools (4.8 percent vs. 8.7 percent, respectively).

Enforcement of School No-Use Policy and Consequences of Violation

Overall, there were few significant differences between grantee and non-grantee schools in reports of the level of enforcement of student violations of school no-use policies. The majority of respondents reported that school no-use policies were enforced “a great deal” against students caught smoking, with the highest levels of enforcement reported by school administrators.

Figure 5.1 and Table 5.2 display grantee/non-grantee differences in school responses to student violations of the no-smoking policy in high schools. According to teachers, school coordinators, and school administrators in high schools, grantee schools are more likely to refer students who violated the no-smoking policy to cessation services than non-grantee schools. Approximately 27 percent (95% CI [16.4, 40.3]) of teachers, 70 percent of school coordinators (95% CI [51.4, 83.2]), and 76 percent (95% CI [59.0, 86.9]) of school administrators in grantee high schools reported that students who are caught smoking cigarettes at school are referred to cessation services, compared to 12 percent (95% CI [6.0, 21.4]) of teachers, 31 percent (95% CI [18.1, 47.7]) of coordinators, and 38 percent (95% CI [24.5, 52.7]) of administrators in non-grantee schools. School TUPE / health coordinators in grantee schools were less likely to report suspension or expulsion as consequences of violation (45.9 percent (95% CI [30.5, 62.1]) vs. 75.2 percent (95% CI [60.3, 85.9]), respectively).

Table 5.1 Demographic Characteristics of Non-Grantee and Grantee High Schools (S.D.)

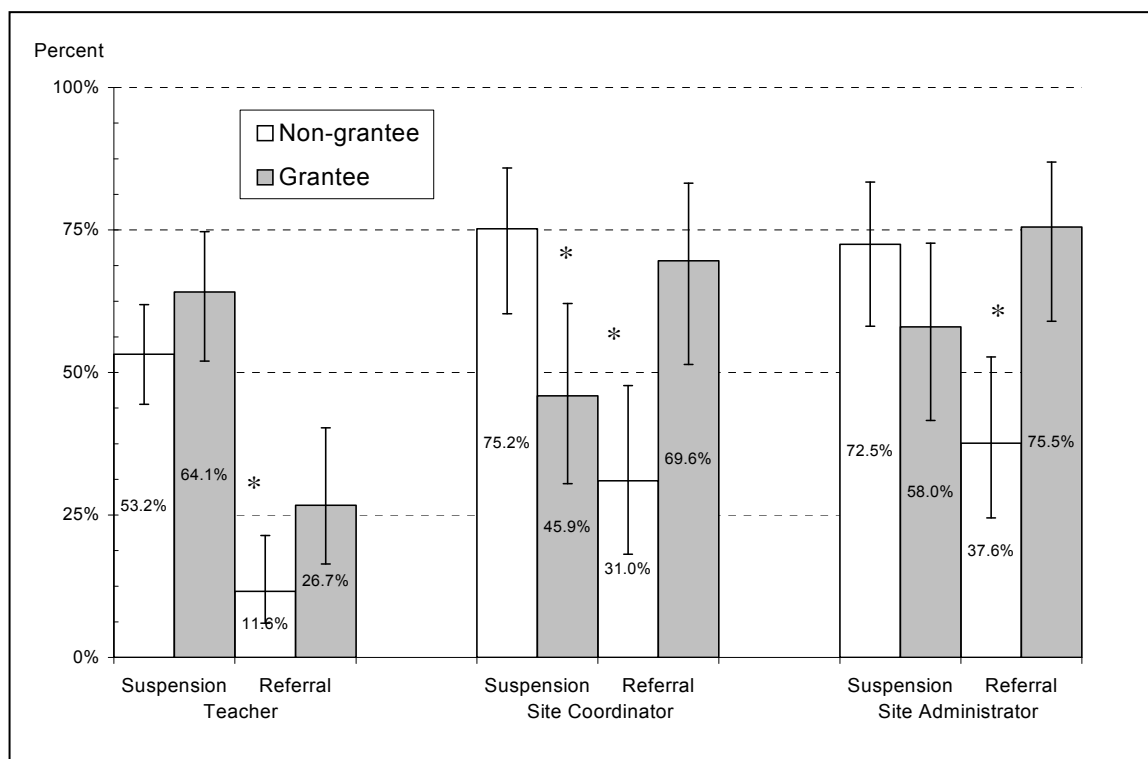
	Competitive Grant Status		p-value
	Non-grantee	Grantee	
Student Enrollment	2,371 (748.4)	2,317 (667.8)	0.68
African American (%)	4.8 (5.6)	8.7 (9.9)	< 0.01
Hispanic/Latino (%)	41.0 (27.3)	35.9 (22.8)	0.27
Caucasian, non-Hispanic/Latino (%)	37.9 (25.3)	34.1 (26.3)	0.42
Subsidized Meals (%)	37.5 (25.9)	33.6 (23.2)	0.39
Academic Performance Index (standardized achievement test scores)	743.2 (77.2)	727.8 (75.5)	0.28
Parental Education (1=less than high school, 5=graduate degree)	2.9 (0.8)	3.0 (0.6)	0.71
Number of schools	69	53	—

Notes:

i. Parentheses contain standard deviations.

ii. * $0.01 \leq p < 0.05$ ** $p < 0.01$

Figure 5.1 Consequences of Violation of No-Tobacco Use Policy by Grantee Status (High Schools)



Program Implementation in TUPE-Grantee and Non-Grantee Schools

Tables 5.2-5.5 show teacher, school TUPE coordinator, and school administrator reports of various measures of program implementation by TUPE grantee status for high schools. The implementation measures can be grouped into four areas: (1) enforcement of school no-use tobacco policies and consequences of violation of school no-use policies, (2) TUPE instruction, (3) school-wide anti-tobacco activities, and (4) tobacco cessation activities. The investigators describe grantee and non-grantee differences in implementation across these areas in turn.

Table 5.2. High School Teacher, Principal, and Coordinator Reports of Prevention/Intervention Policies and Tobacco Instruction by School TUPE Grantee Status:

	<u>Teacher</u>		<u>Coordinator</u>		<u>Administrator</u>	
	<u>Non-grantee</u>	<u>Grantee</u>	<u>Non-grantee</u>	<u>Grantee</u>	<u>Non-grantee</u>	<u>Grantee</u>
<u>No-Use Tobacco Policy</u>						
Enforcement (a great deal)	77.6% [66.0, 86.1]	84.2% [75.4, 90.2]	74.7% [56.8, 86.9]	71.3% [55.0, 83.4]	94.1% [73.8, 98.9]	95.7% [87.3, 98.6]
<u>Consequences of Violation</u>						
Suspension/ expulsion	53.2% [44.4, 61.9]	64.1% [52.0, 74.7]	75.2% [60.3, 85.9]	45.9%* [30.5, 62.1]	72.5% [58.1, 83.4]	58.0% [41.6, 72.7]
Referral to cessation services	11.6% [6.0, 21.4]	26.7%* [16.4, 40.3]	31.0% [18.1, 47.7]	69.6%** [51.4, 83.2]	37.6% [24.5, 52.7]	75.5%** [59.0, 86.9]
<u>Tobacco Instructionⁱ</u>						
Lessons	81.3% [41.0, 96.4]	80.1% [47.2, 94.7]	48.4% [32.6, 64.4]	59.7% [43.4, 74.1]	— —	— —
Hours taught	4.77 [3.30, 6.24]	8.90 [1.61, 16.20]	20.38 [10.71, 30.06]	30.27 [11.32, 49.22]	— —	— —
Published curriculum	25.4% [9.9, 51.3]	80.1%** [47.2, 94.7]	— —	— —	— —	— —
Science-based curriculum	4.8% [0.5, 31.2]	35.8% [7.8, 78.7]	22.6% [12.3, 37.8]	34.1% [20.5, 51.0]	— —	— —

Notes:

i. It was impractical to use stratification weights for the analyses. Confidence intervals are slightly larger than they otherwise would be.

ii. Brackets contain the 95 percent confidence intervals.

iii. * $0.01 \leq p < 0.05$ ** $p < 0.01$

i.v. "During the last school year (2006-2007), did you teach any tobacco use prevention lessons?"

v. "During the last school year (2006-2007), on average how many hours did you spend teaching tobacco use prevention lessons to a classroom of students?"

vi. "During the last school year (2006-2007), did you teach any tobacco use prevention lessons from a PUBLISHED curriculum?"

vii. "From which of the following published curricula did you draw the tobacco use prevention lessons that you taught? (Mark all that apply)" options consisted of science-based programs.

Table 5.3. High School Teacher and Coordinator Reports of Prevention/Intervention Curriculum Topics by School TUPE Grantee Status

	<u>Teacher</u>		<u>Coordinator</u>	
	<u>Non-grantee</u>	<u>Grantee</u>	<u>Non-grantee</u>	<u>Grantee</u>
<u>Topics Covered</u>ⁱ				
Tobacco and health	77.2% [37.8, 95.0]	80.1% [47.2, 94.7]	64.4% [47.0, 78.6]	78.4% [62.7, 88.7]
Smoking prevalence	56.8% [22.0, 86.0]	74.5% [43.0, 91.9]	53.4% [37.3, 68.8]	70.5% [53.8, 83.0]
Reasons why people smoke	77.2% [37.8, 95.0]	80.1% [47.2, 94.7]	62.3% [45.2, 76.8]	76.2% [60.0, 87.2]
Social consequences	39.9% [20.3, 63.3]	74.5% [43.0, 91.9]	56.6% [39.8, 72.0]	62.7% [44.7, 77.7]
Secondhand smoke	77.2% [37.8, 95.0]	74.5% [43.0, 91.9]	63.2% [46.0, 77.6]	76.6% [60.9, 87.3]
Social influences	88.8% [58.3, 97.8]	74.5% [43.0, 91.9]	63.4% [46.2, 77.8]	62.9% [45.5, 77.5]
Behavioral skills	55.4% [19.8, 86.2]	74.5% [43.0, 91.9]	61.0% [44.3, 75.5]	71.3% [55.4, 83.2]
General social skills	62.4% [25.8, 88.8]	74.5% [43.0, 91.9]	45.1% [30.3, 60.7]	64.3% [47.3, 78.3]
Tobacco cessation	44.6% [23.6, 67.8]	40.1% [16.0, 70.1]	43.6% [28.8, 59.6]	70.3%* [53.3, 83.0]
Advertising	69.4% [33.2, 91.2]	71.1% [40.1, 90.1]	56.5% [40.4, 71.3]	57.8% [41.0, 73.0]
Smokeless tobacco	— —	— —	56.4% [40.2, 71.3]	59.6% [42.7, 74.4]
Cigar use	20.9% [5.8, 53.3]	63.0%* [35.2, 84.2]	36.7% [23.6, 52.3]	41.6% [26.7, 58.1]

Notes:

i. It was impractical to use stratification weights for the analyses. Confidence intervals are slightly larger than they otherwise would be.

ii. Brackets contain the 95 percent confidence intervals.

iii. * 0.01 ≤ p < 0.05

** p < 0.01

Tobacco Use Prevention Instruction

Few differences were apparent between grantee and non-grantee high schools in teacher reports of tobacco instruction provided to students. Teacher reports pertaining

to tobacco instruction come from teachers who taught tobacco use prevention (TUPE) lessons – teachers of other subjects were excluded from the analyses because very few of them would be expected to teach tobacco-related lessons. In high schools, TUPE teachers were equally likely to provide tobacco prevention lessons in grantee and non-grantee schools, and to cover the same topics in their lessons, with one exception. Teachers in grantee high schools were more likely to report that they included Cigar Use in their prevention curriculum than teachers in non-grantee schools (60.3 percent (95% CI [35.2, 84.2]) vs. 20.9 percent (95% CI [5.8, 53.3])).

For the most part, school coordinator reports of tobacco-related instruction also did not differ by grantee status. In only one area was there a difference by grantee status. High schools with competitive grants provided more information about tobacco cessation than non-grantee high schools (70.3 percent (95% CI [53.3, 83.0]) vs. 43.6 percent (95% CI [28.8, 59.6])).

With regards to tobacco use prevention instruction, the major difference between staff in grantee and non-grantee schools was in using a published TUPE curriculum. As shown in Figure 5.2, teachers in grantee high schools were more likely to report having taught prevention lessons using a published curriculum. About 80 percent (95% CI [47.2, 94.7]) of teachers in grantee schools reported teaching from a published curriculum, compared to about 25 percent of teachers in non-grantee schools (95% CI [9.9, 51.3]). And teachers in grantee high schools reported substantially higher levels of preparedness to teach tobacco use prevention lessons than their counterparts in non-grantee schools – (78.5 percent said that they were prepared “a great deal”; 95% CI [49.0, 93.3] vs. 36.2 percent; 95% CI [16.3, 62.3]). Coordinators in grantee high schools were slightly more likely to report covering specific topics in their tobacco use prevention lessons than coordinators in non-grantee high schools. These topics included “Tobacco Cessation”, “Tobacco and health”, “Smoking prevalence”, “Reasons why people smoke”,

“Secondhand smoke”, “Behavior skills”, “General social skills”, “Smokeless tobacco”, and “Cigar use” (Table 5.3). Except for “Tobacco Cessation”, these associations were not statistically significant. No significant grantee/non-grantee differences were found in terms of using a science-based curriculum (such as Project ALERT).

Figure 5.2 Tobacco Use Prevention Education Lessons and Preparedness by Grantee Status (High Schools)

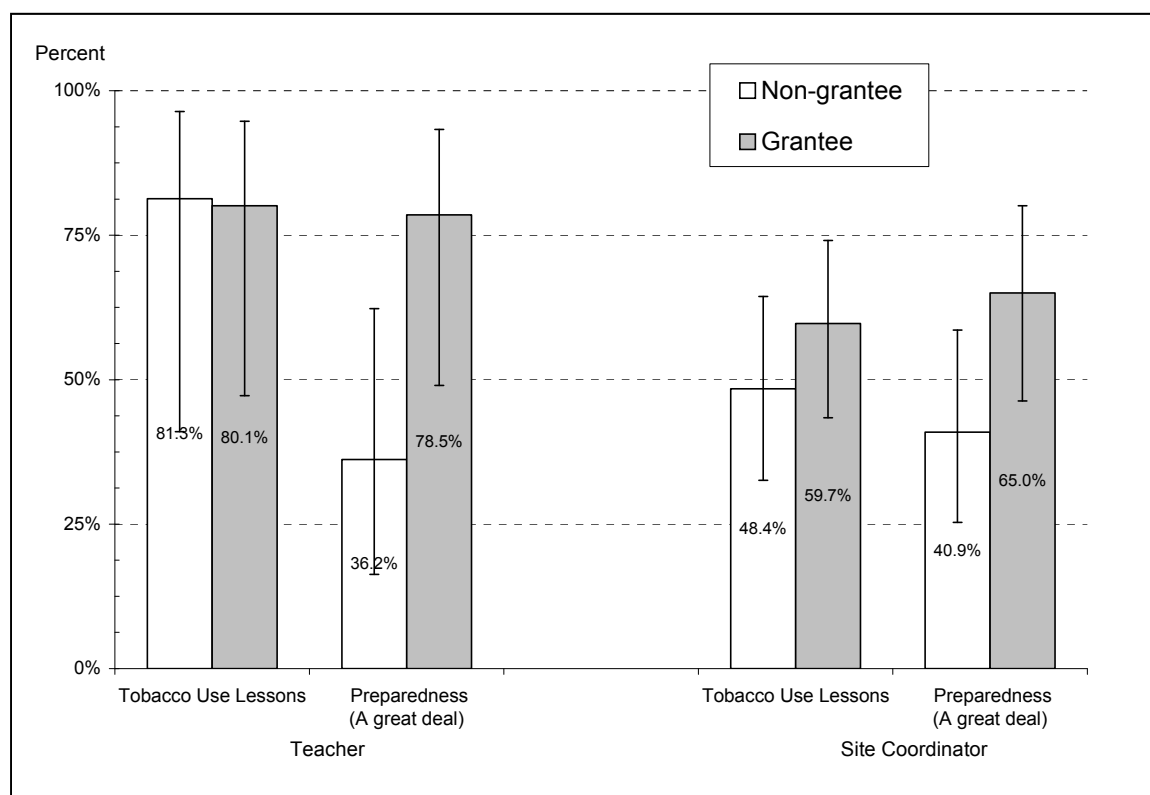


Table 5.4. High School Teacher and Coordinator Reports of Professional Development/Trainings by TUPE Grantee Status

	<u>Teacher</u>		<u>Coordinator</u>	
	<u>Non-grantee</u>	<u>Grantee</u>	<u>Non-grantee</u>	<u>Grantee</u>
<u>Professional Development/Training</u>				
In-service training	42.7% [20.4, 68.4]	73.6% [45.1, 90.4]	— —	— —
Developmental asset training	20.6% [6.1, 50.9]	15.0% [4.2, 41.4]	42.8% [26.5, 60.9]	49.3% [30.3, 68.5]
Youth development training	22.4% [5.2, 60.3]	55.4% [24.5, 82.7]	29.1% [16.6, 45.8]	56.6%* [38.0, 73.5]
Science-based prevention training	8.8% [1.9, 33.2]	29.7% [11.5, 57.9]	17.0% [7.4, 34.6]	41.8%* [25.2, 60.5]
Training in readiness to quit	0.0% [—]	38.4%* [9.6, 78.6]	17.9% [7.2, 38.0]	46.4%* [30.3, 63.3]
Cessation programs	4.8% [0.5, 31.2]	18.0% [5.0, 48.0]	19.5% [8.3, 39.3]	49.2%* [32.4, 66.1]
Preparedness (a great deal)	36.2% [16.3, 62.3]	78.5%* [49.0, 93.3]	40.9% [25.3, 58.6]	65.0% [46.3, 80.1]

Notes:

i. Brackets contain the 95 percent confidence intervals.

ii. * $0.01 \leq p < 0.05$ ** $p < 0.01$

Professional Development Training

There were significant grantee and non-grantee differences in professional development training, according to the high school TUPE /health coordinator report (Table 5.4).

Coordinators in grantee high schools were more likely than their counterparts in non-grantee high schools to report participating in professional training on “Youth development training” (56.6 percent; 95% CI [38.0, 73.5] vs. 29.1 percent; 95% CI [16.6, 45.8]), “Science-based prevention training” (41.8 percent; 95% CI [25.2, 60.5] vs. 17.0 percent; 95% CI [7.4, 34.6]), “Readiness to quit training” (46.4 percent; 95% CI [30.3, 63.3] vs. 17.9 percent; 95% CI [7.2, 38.0]), and “Cessation programs” (49.2 percent; 95% CI [32.4, 66.1] vs. 19.5 percent; 95% CI [8.3, 39.3]). About 38 percent of teachers in grantee high schools reported that they participated in Readiness to Quit programs. By contrast, no teachers in non-grantee high schools reported that they participated in this training program during the past 5 years.

Table 5.5. High School Teacher, Principal, and Coordinator Reports of School-Wide Anti-tobacco Activities by TUPE Grantee Status

	<u>Teacher</u>		<u>Coordinator</u>		<u>Administrator</u>	
	<u>Non-grantee</u>	<u>Grantee</u>	<u>Non-grantee</u>	<u>Grantee</u>	<u>Non-grantee</u>	<u>Grantee</u>
<u>School-Wide Anti-tobacco Activities</u>						
Teens Kick Ash	5.3% [2.6, 10.7]	24.1%** [15.7, 35.0]	8.1% [2.8, 21.5]	29.8%* [18.3, 44.5]	25.0% [13.2, 42.3]	41.6% [25.8, 59.3]
Smoke Out	15.2% [10.1, 22.4]	47.8%** [31.1, 65.0]	32.1% [18.7, 49.2]	62.1%* [46.0, 75.9]	43.7% [29.0, 59.6]	60.2% [44.0, 74.4]
Assembly	3.6% [1.5, 8.1]	24.9%** [15.8, 36.9]	12.9% [5.1, 29.2]	36.4%* [22.3, 53.2]	10.4% [4.0, 24.6]	34.0%* [19.8, 51.7]
Contest	8.5% [4.0, 16.9]	25.5%** [16.2, 37.5]	28.2% [15.7, 45.3]	47.8% [31.0, 65.0]	18.6% [10.8, 30.2]	52.7%** [36.1, 68.6]
Anti-tobacco club	1.3% [0.4, 3.8]	13.4%** [7.6, 22.6]	11.8% [6.2, 21.2]	39.8%** [25.3, 56.4]	13.1% [7.3, 22.4]	38.5%** [25.1, 54.0]
Local health department	0.9% [0.3, 2.8]	6.8%** [3.0, 14.7]	4.5% [0.9, 19.4]	25.6%* [14.7, 40.7]	10.6% [4.3, 23.6]	21.8% [10.5, 39.9]
Anti-tobacco posters	23.4% [14.8, 34.9]	48.7%** [35.5, 62.1]	39.2% [24.9, 55.6]	81.5%** [64.8, 91.3]	44.3% [28.8, 61.0]	61.0% [44.5, 75.4]
Red Ribbon Week	46.3% [36.5, 56.5]	62.9% [49.3, 74.7]	57.3% [39.7, 73.2]	83.3%* [68.8, 91.9]	68.8% [51.3, 82.2]	80.5% [65.3, 90.1]
Number of activities	1.17 [0.87, 1.46]	2.91** [2.23, 3.60]	2.32 [1.46, 3.18]	4.96** [4.14, 5.78]	2.59 [2.00, 3.17]	4.65** [3.77, 5.53]
<u>Cessation Activities</u>						
Cessation programs	8.4% [3.6, 18.5]	26.3%* [16.8, 38.7]	21.5% [10.3, 39.5]	70.4%** [54.5, 82.5]	16.0% [7.2, 31.8]	61.4%** [45.7, 75.0]
Referral to cessation	3.9% [0.7, 19.2]	18.5%* [9.6, 32.8]	42.3% [23.7, 63.4]	64.3% [44.7, 80.0]	— —	— —

Notes:

i. Brackets contain the 95 percent confidence intervals.

ii. * 0.01 ≤ p < 0.05

** p < 0.01

School-wide Anti-tobacco Activities

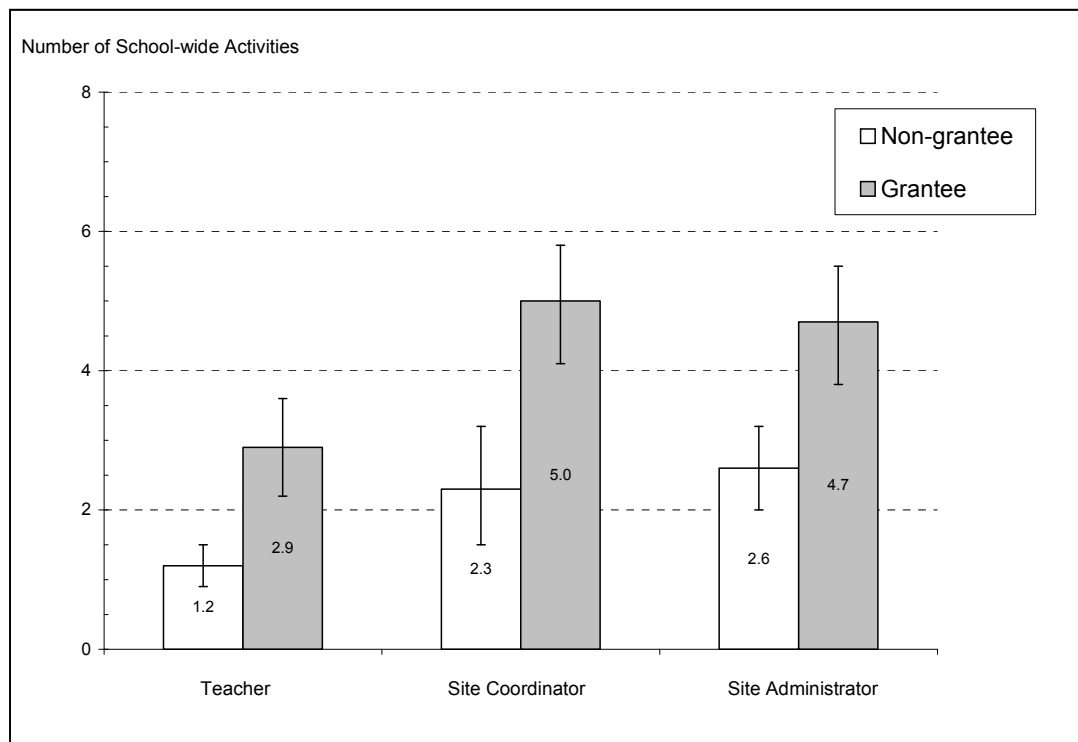
Grantee and non-grantee high schools also differed with respect to reports of school-wide anti-tobacco activities. According to the high school teacher surveys, grantee schools were more likely than non-grantee schools to conduct activities as part of:

“Teens Kick Ash” (24.1 percent; 95% CI [15.7, 35.0] vs. 5.3 percent; 95% CI [2.6, 10.7] for teacher report, 29.8 percent; 95% CI [18.3, 44.5] vs. 8.1 percent; 95% CI [2.8, 35.0] for coordinator report), celebrate a special day called the “Great American Smokeout” (47.8 percent; 95% CI [31.1, 65.0] for teacher report, 62.1 percent; 95% CI [46.0, 75.9] for coordinator report), hold an assembly or other event about tobacco use prevention (24.9 percent; 95% CI [15.8, 36.9] for teacher report, 36.4 percent; 95% CI [22.3, 53.2] for coordinator report, 34.0 percent; 95% CI [19.8, 51.7]), sponsor an anti-tobacco contest (25.5 percent; 95% CI [16.2, 37.5] for teacher report, 52.7 percent; 95% CI [36.1, 68.6] for administrator report), sponsor an anti-tobacco club (13.4 percent; 95% CI [7.6, 22.6] for teacher report, 39.8 percent; 95% CI [25.3, 56.4] for coordinator report, 38.5 percent; 95% CI [25.1, 54.0] for administrator report), participate in tobacco prevention activities with the local health department (6.8 percent; 95% CI [3.0, 14.7] for teacher report, 25.6 percent; 95% CI [14.7, 40.7] for coordinator report), post anti-tobacco posters (48.7 percent; 95% CI [35.5, 62.1] for teacher report, 81.5 percent; 95% CI [64.8, 91.3] for coordinator report), and celebrate Drug Free Week or Red Ribbon Week (83.3 percent; 95% CI [68.8, 91.9] for coordinator report).

Teachers, coordinators, and administrators in grantee high schools all were more likely than those in non-grantee high schools to report that their school sponsored a special day where students and staff were encouraged to abstain from smoking, and held an anti-tobacco assembly and sponsor an anti-tobacco club. According to high school staff, grantee schools provided about one or two more school-wide tobacco prevention activities, on average, than non-grantee schools (2.91 percent; 95% CI [2.23, 3.60] vs. 1.17 percent; 95% CI [0.87, 1.46]) according to the teacher report, (4.96 percent; 95%

CI [4.14, 5.78] vs. 2.32 percent; 95% CI [1.46, 3.18]); and the coordinator report, (4.65 percent; 95% CI [3.77, 5.53] vs. 2.59 percent; 95% CI [2.00, 3.17])(Figure 5.3, below).

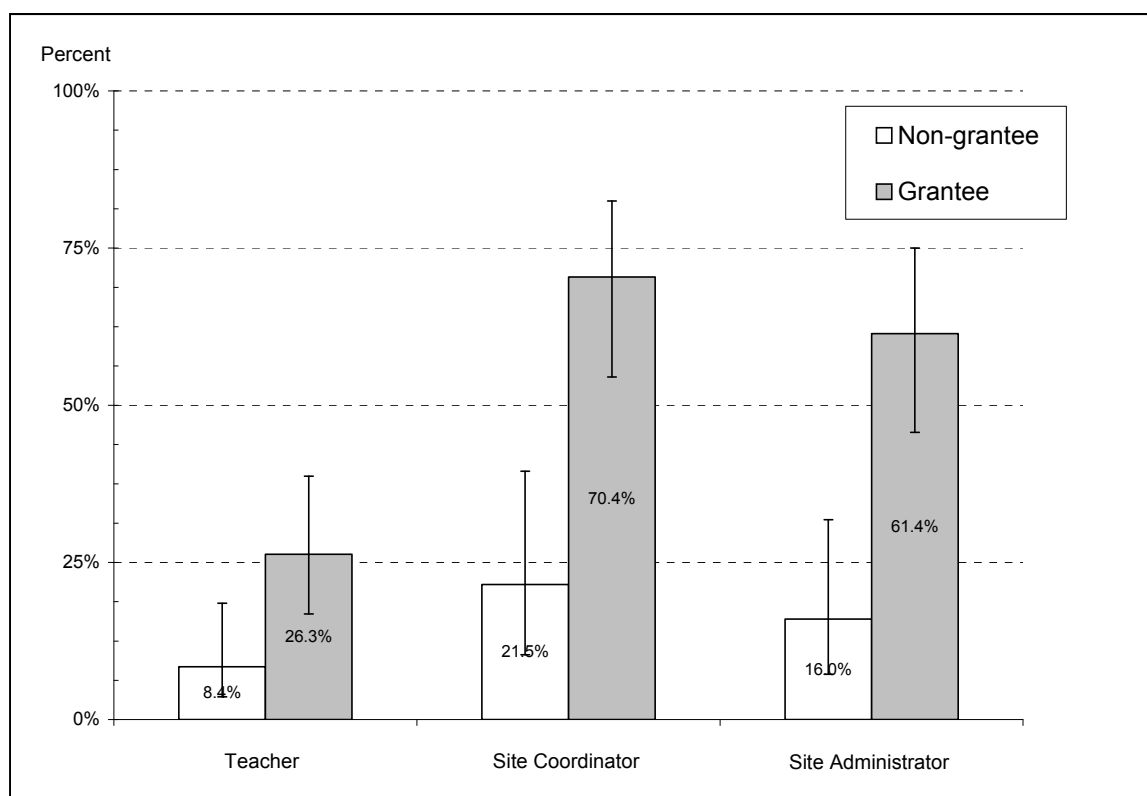
Figure 5.3 Number of School-Wide Anti-Tobacco Activities by Grantee Status (High Schools)



Cessation Activities

Figure 5.4 shows grantee/non-grantee differences in reports of the presence of cessation programs for high school students. The figure shows that grantee high schools are about three times as likely to have a cessation program for students than non-grantee schools. Overall, teachers were less than half as likely to be aware of such services than school coordinators and school administrators. Teachers in grantee high schools were more likely to report that they referred students to cessation programs than those in non-grantee schools

Figure 5.4 School Tobacco Cessation Program by Grantee Status (High Schools)



Student Exposure to Prevention/Intervention Services in TUPE-Grantee and Non-Grantee High Schools

Figures 5.5-5.7 and Tables 5.7-5.8 show differences in student reports of exposure to program services between high schools with TUPE competitive grants and schools without such grants. The student measures of exposure to program services are described in more detail in Chapter 3. Overall, the results indicate that students in grantee high schools tended to report higher levels of exposure to tobacco prevention education services than students in non-grantee schools. More high school students in grantee than in non-grantee schools reported that they had school lessons about tobacco (42.9 percent; 95% CI [38.7, 47.3] vs. 35.6 percent; 95% CI [32.8, 38.6]), that a guest speaker talked to their class about not using tobacco (37.7 percent; 95% CI [34.6, 40.9] vs. 33.2 percent; 95% CI [30.8, 35.7]), that they went to a school assembly about

the harmful effects of tobacco use (29.6 percent; 95% CI [25.2, 34.4] vs. 23.9 percent; 95% CI [21.5, 26.5]), availability of peer cessation training (54.3 percent; 95% CI [51.3, 57.3] vs. 49.4 percent; 95% CI [46.1, 52.7]) and cessation classes (19.6 percent; 95% CI [15.2, 25.0] vs. 11.0 percent; 95% CI [8.0, 14.9]). However, we did not find significant differences on other prevention/intervention services, e.g., teaching about why people smoke, smoking prevalence, physical harm from smoking, secondhand smoke, smoking decision-making skills, and refusal skills training. It may underscore the fact that the state TUPE competitive program is not the only source of resources for public school-based tobacco prevention activities. No attempt was made in this study to quantify the impact of other resources such as tobacco use prevention and cessation materials from the American Cancer Society, American Lung Association, American Heart Association or other federally funded prevention programs.

Figure 5.5 Access to Tobacco-Related Information by High School Grantee Status

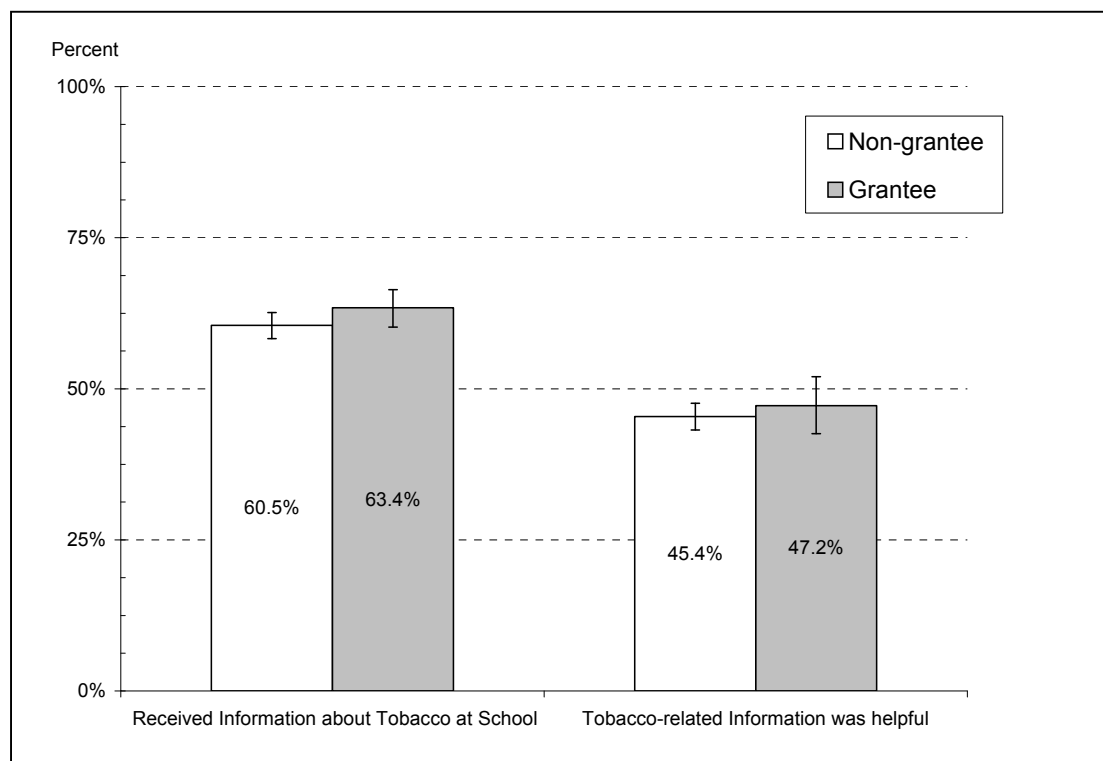
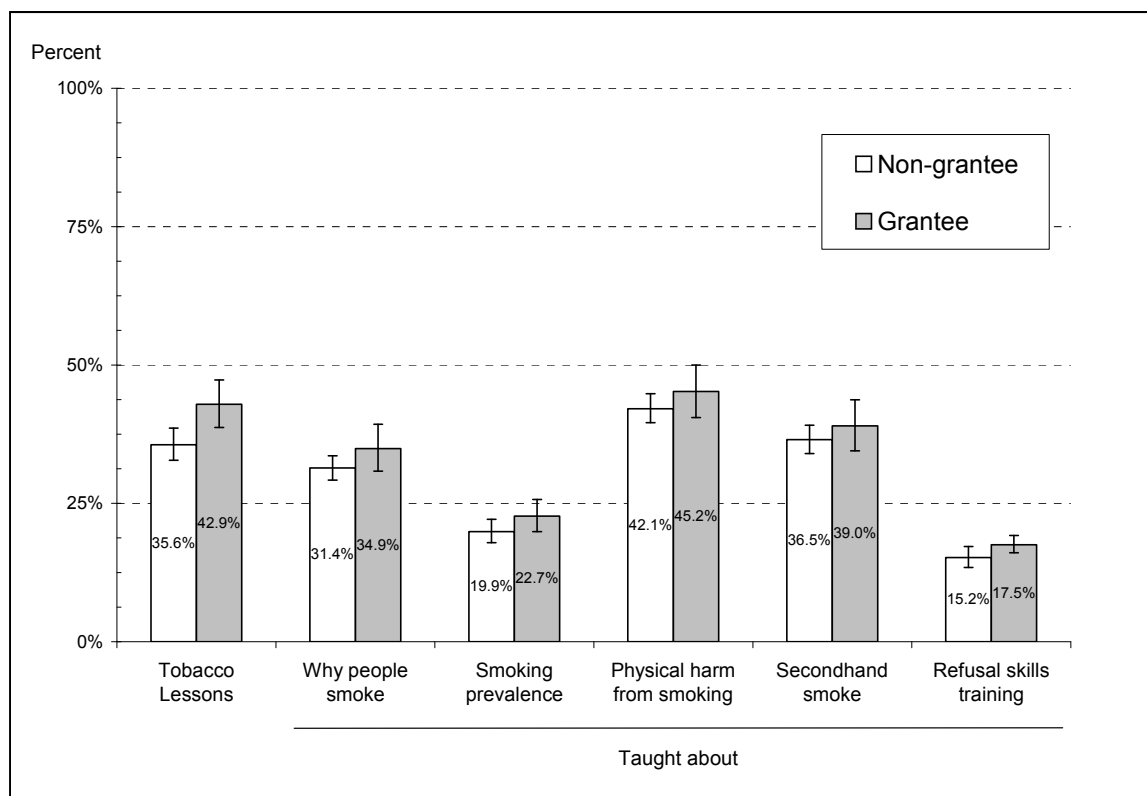


Figure 5.6 shows student exposure to tobacco lessons and tobacco-related topics by TUPE grantee status for high school students. Once again, students in grantee high schools reported higher levels of exposure to tobacco lessons than their counterparts in non-grantee schools. Among high schools, exposure to tobacco lessons was higher among grantee schools (42.9 percent 95% CI [38.7, 47.3] vs. 35.6 percent; 95% CI [32.8, 38.6]). Figure 5.6 also shows grantee/non-grantee differences in students' exposure to specific tobacco topics. Similar to the pattern we found in the 2005-06 IETP data, the most common topics covered were tobacco use prevalence, the physical consequences of tobacco use, and the reasons why people smoke. The least common topic covered was refusal skills training. For all topics, the differences between grantee and non-grantee schools were not statistically significant.

Figure 5.6 Exposure to Tobacco Lessons by Grantee Status (High Schools)



As discussed in Chapter 3, high school students are less likely to report exposure to classes that cover tobacco use prevention-related material as they advance through higher grades. This same pattern is evident in both grantee and non-grantee schools. As shown in Figure 5.7, however, 11th and 12th graders in grantee schools reported higher rates of exposure to tobacco use prevention education lessons than 11th and 12th graders in non-grantee schools.

Figure 5.7 Exposure to Tobacco Lessons by Grade and Grantee Status (High Schools)

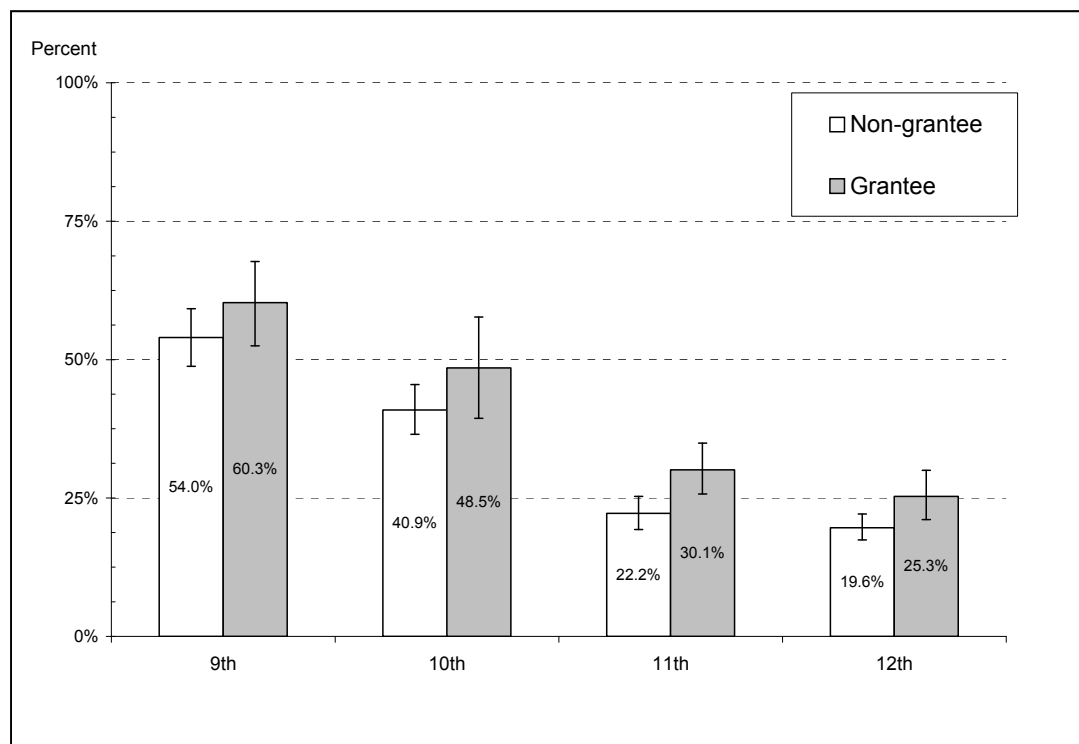


Table 5.7. Student Reports of Exposure to Prevention/Intervention Services by High School Competitive Grantee Status

	High School Grant Status		<i>p</i>-value
	<u>Non-grantee</u> <u>(Percent)</u>	<u>Grantee</u> <u>(Percent)</u>	
Received information about tobacco	60.5% [58.3, 62.6]	63.4% [60.2, 66.4]	0.13
Tobacco information helpful	45.4% [43.2, 47.6]	47.2% [42.6, 52.0]	0.48
Tobacco lessons	35.6% [32.8, 38.6]	42.9%** [38.7, 47.3]	<0.01
Guest speaker	33.2% [30.8, 35.7]	37.7%* [34.6, 40.9]	0.02
Assembly about tobacco use	23.9% [21.5, 26.5]	29.6%* [25.2, 34.4]	0.03
Taught about why people smoke	31.4% [29.2, 33.6]	34.9% [30.8, 39.3]	0.14
Taught about smoking prevalence	19.9% [17.9, 22.1]	22.7% [19.9, 25.7]	0.13
Taught about physical harm from smoking	42.1% [39.6, 44.8]	45.2% [40.5, 50.0]	0.26
Taught about second hand smoke	36.5% [34.0, 39.1]	39.0% [34.5, 43.7]	0.35
Smoking Decision-making skills	45.4% [43.2, 47.6]	47.2% [42.6, 52.0]	0.48
Refusal skills training	15.2% [13.4, 17.2]	17.5% [16.1, 19.2]	0.06
Cessation training	49.4% [46.1, 52.7]	54.3%* [51.3, 57.3]	0.03
Cessation classes	11.0% [8.0, 14.9]	19.6%** [15.2, 25.0]	0.00

Notes:

i. Brackets contain the 95 percent confidence intervals.

ii. * 0.01 ≤ *p* < 0.05** *p* < 0.01

As shown in Table 5.7 and Figure 5.8, students in grantee high schools reported that their schools provided more cessation-related services than students in non-grantee schools. Over one-quarter of students (27.0 percent; 95% CI [17.0, 40.0]) in grantee high schools reported that their school had special groups or classes for students who want to quit smoking, compared to 17.3 percent of students in non-grantee schools (95% CI [12.9, 22.9]). More than half of students in both grantee (57.0 percent; 95% CI [53.7, 60.2]) and non-grantee (53.5 percent; 95% CI [49.7, 57.2]) high schools reported that students their age can be trained to help students who want to quit their tobacco

use habit. Clearly, TUPE funding in high schools appears to make it more possible for high schools to provide cessation services, according to students, teachers, and TUPE coordinators.

Figure 5.8. School-wide Tobacco Events and Cessation Activities (Student Reports) by Grantee Status (High Schools)

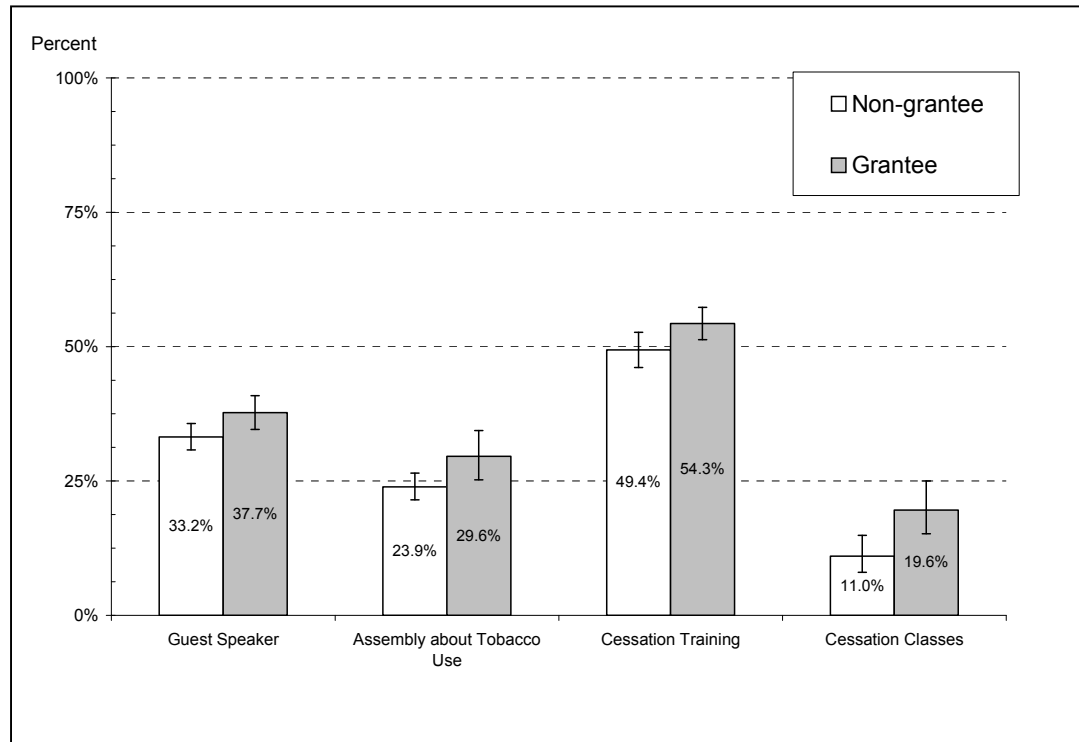


Table 5.8. Student Reports of Exposure to Prevention/Intervention Services by Duration of High School Competitive Grant

	Length of TUPE Grant		<i>p-value</i>
	<u>0-3 Years</u> <u>(Percent)</u>	<u>3+ Years</u> <u>(Percent)</u>	
Received information about tobacco	63.0% [58.9, 66.8]	64.6% [61.0, 68.2]	0.53
Tobacco information helpful	46.6% [40.6, 52.7]	49.3% [45.3, 53.3]	0.47
Tobacco lessons	42.8% [37.3, 48.5]	43.5% [40.5, 46.6]	0.81
Guest speaker	37.8% [33.9, 41.9]	37.4% [33.7, 41.3]	0.88
Assembly about tobacco use	30.7% [25.3, 36.8]	26.0% [21.9, 30.5]	0.19
Taught about why people smoke	33.7% [28.5, 39.4]	38.7% [35.8, 41.7]	0.12
Taught about smoking prevalence	22.1% [18.6, 26.0]	24.5% [22.1, 27.1]	0.29
Taught about physical harm from smoking	44.5% [38.3, 50.9]	47.6% [45.5, 49.6]	0.36
Taught about 2nd hand smoke	38.4% [32.5, 44.7]	40.9% [37.6, 44.2]	0.48
Smoking Decision-making skills	46.6% [40.6, 52.7]	49.3% [45.3, 53.3]	0.47
Refusal skills training	17.4% [15.5, 19.4]	18.1% [16.2, 20.2]	0.60
Cessation training	53.5% [49.7, 57.2]	57.0% [53.7, 60.2]	0.16
Cessation classes	17.3% [12.9, 22.9]	27.0% [17.0, 40.0]	0.09

Notes:

i. It was impractical to use stratification weights for the analyses. Confidence intervals are slightly larger than they

ii. Brackets contain the 95 percent confidence intervals.

iii. * $0.01 \leq p < 0.05$ ** $p < 0.01$

We also examined the relationship between how long the high school had had a competitive grant and student reports of exposure to program services. In the 2005-06 IETP report, the investigators divided schools with TUPE grants into three groups – those that had a grant for less than three years, those with grants for more than three years but less than six years, and those that had a grant for six years or more. A period of three years was considered minimally necessary for schools to fully realize the

benefits of developing and implementing a school-based tobacco use prevention education program. In the 2007-08 data, no schools fell into the middle category. Therefore, the investigators categorized schools with TUPE grant funding into two groups – schools that had a grant for three years or less, and schools that had a grant for more than three years. Since no schools fall into the middle category of having TUPE grant for more than three but less than six years, the investigators are actually comparing schools that had a grant for three years or less, and schools that had a grant for more than 7 years. The investigators then compared student reports across these two groups of grantee schools.¹ These comparisons are presented in Table 5.8. TUPE

¹ The investigators also compared teacher and school coordinator reports of program implementation across these three groups of grantee schools. Although the limited sample size reduced our ability to detect differences, in no case was there evidence that TUPE grant duration was related to teacher and coordinator reports of program implementation.

grant duration was found to be unrelated to student measures of tobacco use prevention services.

Student Tobacco Use and Tobacco Use Precursors in TUPE-Grantee and Non-Grantee High Schools

The results presented in Table 5.8 indicate that students in grantee schools reported levels of exposure to program services that were similar to those reported by students in non-grantee schools. Because there were few apparent differences in program exposure, there were likely to be few grantee/non-grantee differences in tobacco use among students. According to the results in Figures 5.9 and Table 5.9, lifetime tobacco use, current cigarette use, daily cigarette use, and lifetime regular cigarette use were not different in grantee and non-grantee schools. Although the lack of association between TUPE participation and student smoking behavior is consistent with the inference that the competitive TUPE program was not effective in reducing tobacco use, other inferences are also plausible. For example, it is equally plausible that grantee schools had a greater need for services prior to receiving an award, and thus higher tobacco use rates. The finding, then, that tobacco use rates were no different in grantee and non-grantee schools at the time of the survey would then suggest that grantee schools had made progress in reducing tobacco use, bringing their previously high rates down to the same level as the rates of non-TUPE-funded schools. With cross-sectional data such as these, it is impossible to make strong inferences about the effectiveness of the competitive TUPE program. Repeated assessment of the same schools over time would help to distinguish these alternative explanations for why there were few significant differences in student tobacco use by TUPE funding status. The results of such an assessment are reported in Chapter 9.

Figure 5.9. Student Tobacco Use by TUPE Grantee Status (High Schools)

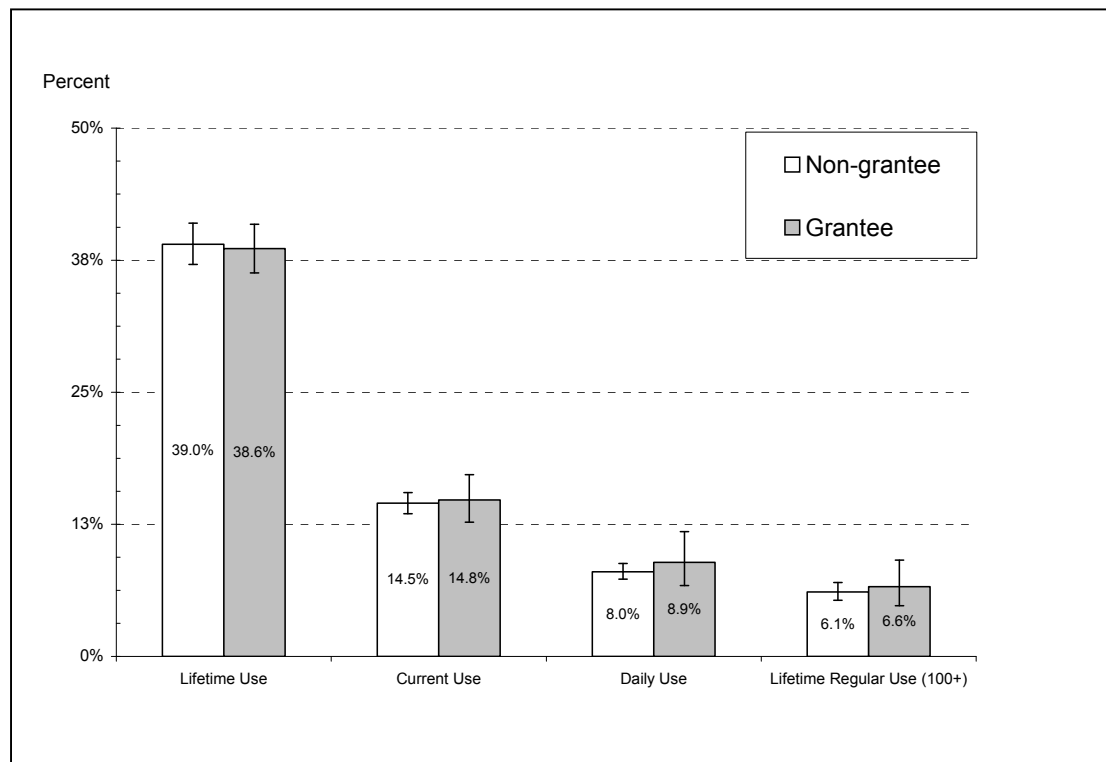


Table 5.10. Student Precursors to Smoking by High School Grantee Status

	<u>High School Grantee Status</u>		<u>p-value</u>
	<u>Non-grantee</u>	<u>Grantee</u>	
Intent NOT to smoke	59.3% [57.7, 60.8]	60.5% [56.8, 64.0]	0.55
Ease of cigarette refusal	58.7% [57.1, 60.3]	60.6% [57.8, 63.4]	0.25
Peer cigarette use	34.6% [32.7, 36.5]	34.4% [32.4, 36.5]	0.93
Accurate smoking norms	25.8% [23.6, 28.1]	26.6% [23.7, 29.7]	0.67
Anti-smoking social perceptions	3.40 [3.37, 3.42]	3.39 [3.34, 3.44]	0.80
Knowledge about consequences of tobacco use	0.51 [0.50, 0.52]	0.53 [0.51, 0.55]	0.12
Anti-tobacco industry beliefs	3.31 [3.29, 3.34]	3.36 [3.32, 3.41]	0.06

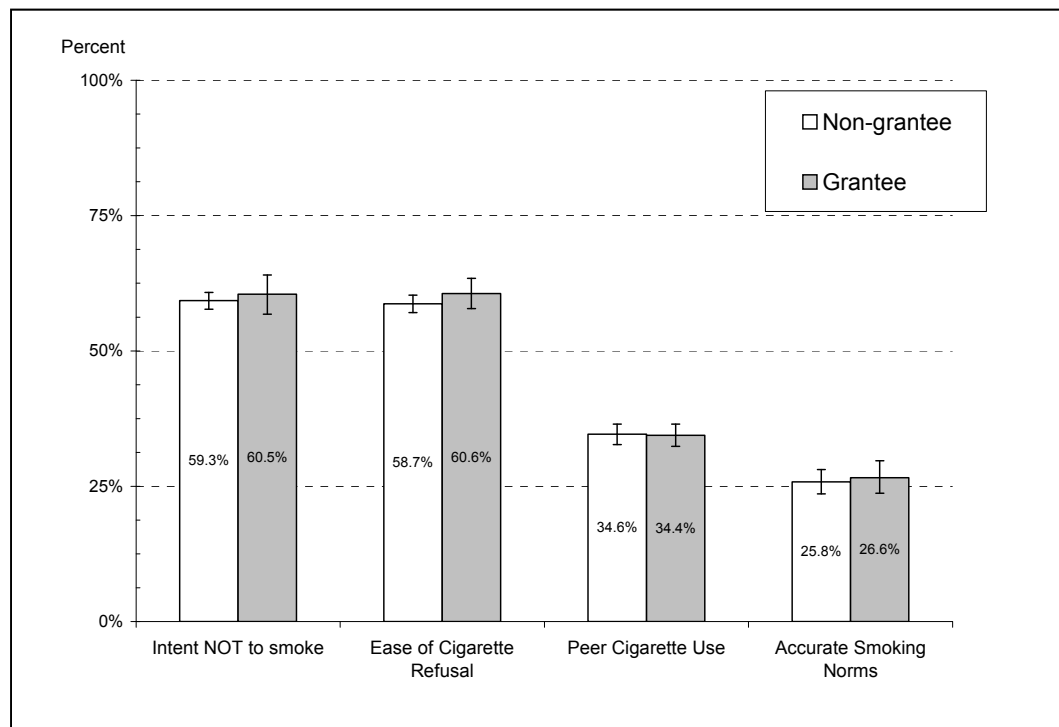
Notes:

i. Brackets contain the 95 percent confidence intervals.

ii. * $0.01 \leq p < 0.05$ ** $p < 0.01$

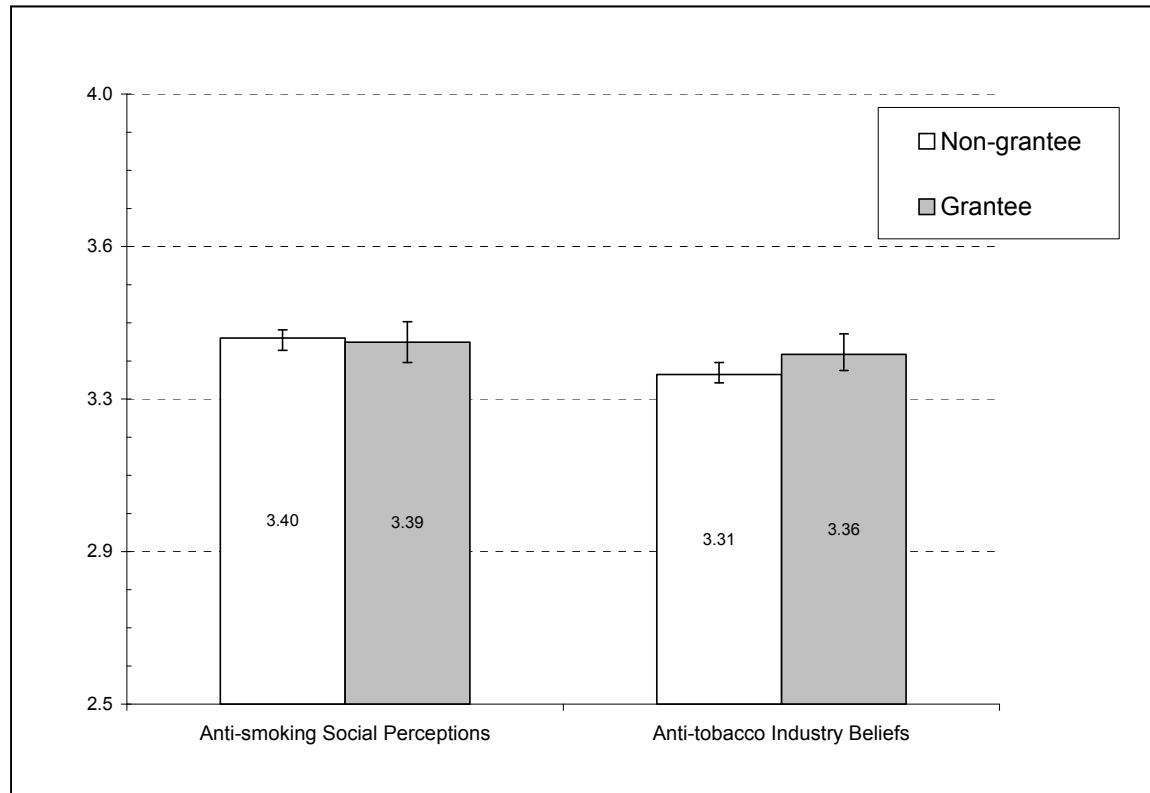
Figures 5.10, 5.11, and Table 5.10 show grantee/non-grantee differences in tobacco use precursors – factors known to be associated with reductions in future tobacco use. For the majority of indicators, students in grantee and non-grantee schools reported similar values on the tobacco use precursors considered. Intentions to not smoke in the future, ease of tobacco refusal, peer cigarette use, accuracy of smoking norms, and knowledge about consequences of tobacco use were not statistically different between students in grantee and non-grantee high schools. Students in grantee schools endorsed anti-tobacco industry beliefs more strongly (3.36 percent; 95% CI [3.32, 3.41] vs. 3.31 percent; 95% CI [3.29, 3.34]) than their counterparts in non-grantee schools. However, this difference was marginally non significant ($p = 0.06$).

Figure 5.10. Student Tobacco Use Precursors by TUPE Grantee Status (High Schools)



- i. Intent NOT to smoke. "Do you think you will smoke a cigarette at any time during the next year?" Percent saying "Definitely Not."
- ii. Ease of Cigarette Refusal. "If one of your best friends offered you a cigarette, would you smoke it?" Percent saying "Definitely Not."
- iii. Peer Cigarette Use. "How many of your four closest friends smoke cigarettes?" If one or more friends smoked, the value was 1; otherwise the value was zero.
- iv. Accurate Smoking Norms. "About what percent of students in your grade have smoked cigarettes at least once a month?" For students in grades 6-8, they were awarded the value of 1 for choosing "0 (none of them)." For students in grades 9-12, they were awarded the value of 1 for choosing "1-20% (some of them)." All other choices were given the value of zero.

Figure 5.11. Anti-smoking perceptions by TUPE Grantee Status (High Schools)



As discussed at the beginning of this chapter, grantee schools differed slightly from non-grantee schools in terms of their demographic composition, which may have masked differences between grantee schools and non-grantee schools attributable to tobacco use prevention education. To account for this potential confounder, the investigators used multiple regression with covariates to statistically adjust for possible confounding influences of ethnicity, income, and parent academic achievement on differences in student tobacco use and tobacco use precursors across grantee and non-grantee schools. In these regression models, the investigators controlled for ethnic composition, the percentage of students receiving subsidized meals, and parental education. The results based on these models were substantively identical to those discussed above. The investigators conclude that demographic differences between grantee and non-

grantee schools in student ethnic and socioeconomic characteristics did not mask differences in student tobacco use or tobacco use precursors.

Table 5.11. Student Smoking Behavior by Duration of High School TUPE competitive Grant

	Length of TUPE Grant		<i>p-value</i>
	<u>0-3 Years</u> <u>(Percent)</u>	<u>3+ Years</u> <u>(Percent)</u>	
Lifetime cigarette use	39.1% [36.8, 41.5]	36.8% [31.2, 42.8]	0.47
Current cigarette use	14.9% [12.2, 18.0]	14.5% [12.0, 17.5]	0.86
Daily cigarette use	8.7% [5.8, 12.7]	9.8% [8.4, 11.4]	0.56
Lifetime 100+ cigarette use	6.6% [4.3, 10.0]	6.7% [5.4, 8.2]	0.96

Notes:

i. It was impractical to use stratification weights for the analyses. Confidence intervals are slightly larger than they

ii. Brackets contain the 95 percent confidence intervals.

iii. * $0.01 \leq p < 0.05$

** $p < 0.01$

Table 5.12. Student Precursors to Smoking by Duration of High School TUPE competitive Grant

	Length of TUPE Grant		<i>p-value</i>
	<u>0-3 Years</u> <u>(Percent)</u>	<u>3+ Years</u> <u>(Percent)</u>	
Intent Not to smoke	59.9% [55.4, 64.2]	62.3% [58.4, 66.1]	0.41
Ease of cigarette refusal	60.1% [56.6, 63.5]	62.2% [58.3, 65.9]	0.42
Peer cigarette use	34.8% [32.3, 37.4]	33.4% [30.5, 36.5]	0.49
Accurate smoking norms	26.7% [23.1, 30.7]	26.1% [23.2, 29.3]	0.80
Anti-smoking social perceptions	3.38 [3.31, 3.44]	3.43 [3.39, 3.46]	0.23
Knowledge about consequences of tobacco use	0.53 [0.50, 0.55]	0.54 [0.52, 0.56]	0.29
Anti-tobacco industry beliefs	3.36 [3.30, 3.41]	3.39 [3.32, 3.45]	0.50

Notes:

i. Brackets contain the 95 percent confidence intervals.

ii. * $0.01 \leq p < 0.05$ ** $p < 0.01$

We also examined how tobacco use and tobacco use precursors varied across grantee high schools by duration of funding. If schools become more effective at preventing and reducing tobacco use with increasing experience, then we would expect grantees that had been funded for a longer period of time to exhibit lower levels of tobacco use and lower levels of precursors to tobacco use than more recent grantees. Tables 5.11 and 5.12 show how tobacco use prevalence and tobacco use precursors are related to the duration of TUPE competitive grant funding. The results suggest that grant duration was not significantly related to student measures of tobacco use or its precursors.

Conclusion

Our analyses of teacher, school coordinator, school administrator, and district coordinator reports of program implementation indicated that high schools with competitive TUPE grants were more likely than other schools to offer cessation services and referral to students, cover the topic of ways of quitting smoking in class, sponsor

school-wide anti-tobacco activities, use a published curriculum, and to provide professional development training to school coordinators. We also found that staff at TUPE grantee schools were significantly less likely than staff at non-grantee schools to resort to suspensions as punishment for students caught smoking. We found no evidence of differences in program implementation (such as school no-use tobacco policy, hours taught TUPE classes, and topics covered in tobacco use prevention lessons (except more discussion of ways to quit as a topic in grantee schools) across grantee and non-grantee high schools.

The majority of secondary school students in CA recalled receiving information about tobacco use at school. Students who attended schools with competitive TUPE grants were equally likely to recall being exposed to specific topics on tobacco use as other

students. This underscores the fact that the state TUPE competitive program is not the only source of resources for school-based tobacco prevention activities². Even high schools that do not have competitive TUPE grants are able to provide tobacco prevention education to their students. The most significant difference between grantee and non-grantee schools is the presence of cessation classes. Almost one fifth of students in grantee schools indicated that their school has a special program for students who want to quit smoking, compared to eleven percent among students in non-grantee schools. Services for cessation appear to be a common component funded by the high school competitive TUPE program that would otherwise not be available to students. There appeared to be no TUPE curriculum differences, however, to parallel

² Some non-TUPE-funded schools nonetheless had resources for supporting a TUPE-type curriculum. Given that many schools used their Safe & Drug-Free Schools resources to discourage tobacco use, a parsimonious explanation for the lack of curriculum differences between TUPE-funded and non-TUPE-funded schools is that schools without TUPE funds used Safe & Drug-Free Schools resources to provide some elements of the TUPE curriculum to students.

the observed differences in cessation services between TUPE grantee and non-grantee schools.

TUPE competitive grant duration was not significantly related to student exposure to tobacco prevention services or to student tobacco use prevalence. These results are consistent with those reported in previous In-School Evaluation of TUPE Program (IETP) reports and with the predecessor, Independent Evaluation of Student Smoking (IESS) reports.

Table 5.6. Student Reports of No-Use Tobacco Policies by High School Competitive Grantee Status

	<u>High School Grant Status</u>		<u>p-value</u>
	<u>Non-grantee (Percent)</u>	<u>Grantee (Percent)</u>	
Presence of No-Use Policy (Yes)	89.6% [88.2, 90.9]	89.5% [87.8, 90.9]	0.88
<u>Consequences of Violation of No-Use Policy</u>			
Suspension	46.9% [44.3, 49.5]	47.0% [43.6, 50.5]	0.95
Ticket	17.1% [14.2, 20.5]	15.0% [11.8, 18.9]	0.39
Referred to Special Class	6.9% [5.9, 8.1]	9.7%** [8.5, 11.1]	0.00
Referred to Adult Counselor	10.9% [9.7, 12.2]	11.7% [10.6, 13.0]	0.35
Referred to Peer Counselor	5.0% [4.1, 6.1]	6.1% [5.1, 7.3]	0.13
Parent Conference	22.7% [21.2, 24.3]	22.1% [20.2, 24.2]	0.61

Notes:

i. Brackets contain the 95 percent confidence intervals.

ii. * $0.01 \leq p < 0.05$

** $p < 0.01$

Table 5.9. Student Smoking Behavior by High School Competitive Grantee Status

	<u>High School Grantee Status</u>		<u>p-value</u>
	<u>Non-grantee (Percent)</u>	<u>Grantee (Percent)</u>	
Lifetime cigarette use	39.0% [37.1, 41.0]	38.6% [36.3, 40.9]	0.76
Current cigarette use	14.5% [13.5, 15.5]	14.8% [12.7, 17.2]	0.78
Daily cigarette use	8.0% [7.3, 8.8]	8.9% [6.7, 11.8]	0.48
Lifetime 100+ cigarette use	6.1% [5.3, 7.0]	6.6% [4.8, 9.1]	0.66

Notes:

i. Brackets contain the 95 percent confidence intervals.

ii. * $0.01 \leq p < 0.05$ ** $p < 0.01$

CHAPTER 6: KNOWLEDGE OF TUPE PROGRAM IMPLEMENTATION

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CHAPTER 6: KNOWLEDGE OF TUPE PROGRAM IMPLEMENTATION

CHAPTER HIGHLIGHTS

- Reports of TUPE program implementation were not consistent across school-level and district-level staff, in part because district coordinators had a more inclusive perspective that included all schools while TUPE staff at sampled schools had perspectives more likely to be unique to their school.
- District staff tended to report higher frequency of adherence to federal guidelines (e.g. instruction on various effects of tobacco use, not just physical consequences; using developmentally appropriate, science-based published curricula; involving parents and families) than was reported by school staff.
- Staff across all levels reported the presence and enforcement of a tobacco control policy in their respective school, but there was lack of agreement on the consequences for violation of this policy, suggesting that such policies may need to be more clearly and consistently defined and communicated throughout the school.
- Both quantitative and qualitative data gathered during interviews with a subset of district coordinators indicated that districts were utilizing non-TUPE resources such as Title IV Safe and Drug Free Schools to augment the TUPE Program and that lack of consistent funding levels presented challenges in planning and implementing the TUPE program with all populations (universal, most-at-risk, current users, and pregnant teens).
- Teachers continue to include multiple approaches to tobacco use prevention (such as social causes of tobacco use and social consequences of tobacco use in addition to physical health effects) and nearly all were using at least one science-based program.
- Qualitative data suggest that the science-based programs are not well-suited for older students (high school) and teachers indicated that while they taught all of the lessons, they had to modify them to be more relevant to students in grades 9-12.
- School TUPE coordinators and teachers continue to feel that they need more support after they have been trained to teach about tobacco use prevention.
- Significant barriers, including funding for substitute coverage, continue to interfere with providing professional development and program-specific training for new teachers already overburdened with high-pressure demands to meet state education standards and boost their students' academic achievement.
- Tobacco use prevention and related health issues in general are not a priority for schools whose first priority is to close the achievement gap.

Introduction

The overall purpose of collecting both qualitative and quantitative data from adults at school sites participating in the student survey and from district-level coordinators was to assess the extent to which school level staff and district administrators were knowledgeable about and actively involved with the TUPE program in their school or district. These data were collected also to enable a comparison of the data from the adult surveys with student data to help understand how various types and intensities of TUPE program implementation related to observed student tobacco use outcomes.

More specifically, this chapter will provide a description of the responses across the four adult surveys (teacher, school administrator, school TUPE/Health Coordinator, and District TUPE/Health Coordinator) with respect to questions about the teachers' knowledge of their local TUPE Program and knowledge of the CDC Tobacco Program Guidelines (CDC, 1994). In addition to the quantitative data collected through the self-report surveys, qualitative telephone interview data were collected from district coordinators from 18 districts, coordinators from 13 schools, three middle and 10 high schools, and from teachers responsible for teaching TUPE in their school. For schools in which there were no specific school persons responsible for coordinating the TUPE Program, the TUPE activities were coordinated at the district level, and principals or assistant principals were responsible for overseeing the activities at their schools. Coordinators in the sample interviewed were counselors (n=3), various TUPE-designated staff persons (n=2), student programs staff (n=2), and one nurse. Of the three teachers interviewed, one was an 8th grade science teacher, one was a teacher/athletic director/Title IV Co-school coordinator, and one was a teacher/leader. In addition to the information obtained from interviews, data were obtained from examining the District Annual Reports submitted to CDE about Title IV and TUPE program

activities and from successful proposals for the TUPE competitive grants in middle and high schools.

Using data from the surveys and interviews, Chapter 7 discusses the effects of school-level policies and practices on student exposure to TUPE programming, and Chapter 8 discusses the impact of school-level policies and practices on student tobacco use outcomes and tobacco use precursors.

Adult Surveys: Responses to Items Related to Centers for Disease Control and Prevention (CDC) Guidelines

As discussed in Chapter 1, surveys were administered to adults at both the school site level and the district level. The school administrator was typically the principal or assistant principal in charge of all health-related curricula. The school coordinator was either the designated TUPE Coordinator or if there was none, then some other teacher responsible for the health curriculum at the school. Finally, the teachers were those who happened to be in the classrooms of students selected for participation in this study. It is noteworthy that some of these teachers had had no previous involvement with TUPE. These teachers completed their survey while their class completed the student survey. Most analyses involving teachers limited the analytical sample to those who had indicated some experience with teaching TUPE lessons.

For more than a decade, the standard for evaluating the comprehensiveness of school tobacco use prevention programs has been the guidelines established by the Centers for Disease Control. (Centers for Disease Control (CDC), 1994) These guidelines identified strategies that the evidence suggested were most likely to be effective in preventing tobacco use and addiction among young people. These guidelines were developed by CDC staff in collaboration with experts from other federal agencies, state agencies, universities, voluntary organizations, and professional associations. Notwithstanding sometimes disconfirming evidence,

(Peterson et al., 2000) these guidelines continue to be the standard used in the field for evaluating the quality of school-based tobacco use prevention programs. Below we systematically review how well California's school tobacco use prevention activities address the CDC guidelines.

CDC Guideline Number One: Develop and Enforce a School Policy on Tobacco Use.

There was high consensus on the items related to school tobacco use policy. The majority of the adult respondents said they were aware of school and district tobacco use / tobacco-free policies. When asked how these policies were communicated at the school level, the most common responses were (1) parent/student/employee handbooks; (2) staff meetings; (3) posters/signs/fliers; (4) parent newsletters, and (5) email or website postings. Table 6.1 provides responses to questions about tobacco use policies. In general, adults at the district and school sites agreed that the policies applied to both students and adults and were enforced 24 hours per day. In general teachers (80.7 percent; 95% CI [77.4, 83.6]) and school coordinators (80.3 percent; 95% CI [69.7, 87.8], were less aware than school administrators (89.9 percent; 95% CI [78.9, 95.5]) that the policy applied to visitors. Answers regarding consequences of the policies for students varied, suggesting that while there may be a policy in place, the consequences of violating the policy were either not well developed or not clearly communicated to staff, or both. Again, there was more congruence among school administrators/coordinators than teachers.

More district coordinators than school staff believed that the consequences of smoking at school were: referral to a special class, referral to an adult counselor, referral to a cessation clinic, or referral to Saturday school. Teachers differed from all other staff in their responses to this item. These disparities may be a result of district policies that allow school administrators some discretion in determining the consequences of policy violations at the school level. It could also reflect imperfect communication from the district to the school and from school administrators to

staff about the policy enforcement protocol and the consequences of violating those policies.

Table 6.2 shows teachers' survey reports on policy enforcement and consequences of violation, both for teachers who taught health-related subjects and for teachers who did not teach health-related subjects.¹ The responses were similar to those reported for teacher and administrator respondents in the 2005-06 IETP report. The responses to the questions about enforcement of the school's tobacco-free policy were higher for "health" teachers compared to "non-health" teachers with respect to suspension, getting a ticket, referred to an adult counselor, and parents called in as consequences of violation of policies.

CDC Guideline Number Two: Provide Instruction About the Negative Physiologic and Social Consequences of Tobacco Use, Social Influences on Tobacco Use, Peer Norms Regarding Tobacco Use, and Refusal Skills.

¹ Science & health teachers in middle schools; health and physical education teachers in high schools

CDC Guideline Number Three: Provide Developmentally Appropriate Tobacco Use Prevention Education in K-12; This Instruction should be Especially Intensive at the Junior High/Middle School Level and be reinforced at the High School Level.

Beginning in the 2002-03 school year, school districts were required to submit a Local Education Agency Plan (LEAP) to the California Department of Education (CDE) for federal entitlements as part of the No Child Left Behind Act of 2001. Although the TUPE program is a state-funded program, it was included in the LEAP template under Performance Goal 4: All students will be educated in learning environments that are safe, drug-free, and conducive to learning. Districts receiving TUPE entitlement funds and competitive grants (although the grants were not part of the LEAP) were required to identify one evidence-based program (i.e. ALERT, Toward No Tobacco) addressing alcohol, violence, other drugs, and tobacco that they would then administer to at least 50 percent of students in an identified target group. The duration of each district's LEAP was five years (July 1, 2003 through June 30, 2008). Districts began implementing their plan during the 2003-04 school year and were required to have the plan for Goal 4 fully implemented by end of the 2005-06 school year.

Subsequent to the submission of the LEAPs, CDE added the requirement that the programs selected must be "science-based". Tables 6.3 and 6.4 show the percent of school and district level coordinators reporting the use of one or more of these programs at all middle schools in the sample and at TUPE grantee and non grantee high schools. The reports are similar to the findings in 2005-06 on the use of science-based programs, with a 10 percentage point decrease in the percent of middle school school coordinators reporting use. Again there is discrepancy between school level (43.8 percent; 95% CI: [21.9, 68.5]) and district level (100 percent; 95% CI: [—]) reports of the use of these programs at the middle schools. All middle schools were eligible to receive TUPE entitlement funding, and a small number of schools also received grade 6-8 competitive TUPE grant funding.

Similar to the findings in 2005-06, there was a lack of congruence between district coordinators and school TUPE coordinators at the TUPE grantee high schools, with 61.7 percent (95% CI: [44.5, 78.5]) of school and 96.1 percent (95% CI: [82.5, 99.2]) of district coordinators reporting use of one or more science-based programs. It does, however, appear that a greater number of schools receiving TUPE competitive grant funding compared to non-grantee schools are using science-based programs. This is particularly evident for the readiness to quit and cessation programs, which are target populations for both middle and high school grantees.

Table 6.5 provides an overview of instructional programs related to CDC Components Two and Three, addressing the content of the TUPE curriculum and the developmental appropriateness of the grade level sequencing of TUPE messages. In general, the perception of the district coordinators with regard to instructional content was not congruent with responses from school staff. The CDC *Guidelines* listed several topics that have been found to be important components of effective tobacco use prevention programs. The adult respondents were asked to mark all of the topics taught in tobacco prevention lessons. Consistent with the findings in 2005-06, district coordinators tended to report a higher frequency for each of the topics listed, compared to other staff respondents. It is unclear why teachers who reported teaching tobacco lessons in the previous year reported a lower prevalence of having taught science-based curriculum (7.5 percent; 95% CI: [4.1, 13.2] compared to 43.1 percent of school coordinators ((95% CI: [33.4, 53.3])). These teachers also reported a lower prevalence of having taught all of the topics except for the effects of tobacco on physical health and tobacco advertising and marketing, when compared to all other adult respondents. Health effects of tobacco and tobacco advertising and marketing were the most widely named topics across adult respondents (These topics were followed in popularity by: reasons why young people smoke, and second-hand smoke). Only 35 percent (95% CI: [27.1, 43.8]) of teachers who taught prevention lessons in the past year included general personal and social skills, while 50.4 percent (95% CI:

[39.7, 61.1]) of school coordinators and 65.0 percent (95% CI: [38.7, 84.5]) of district coordinators marked this topic.

Again, as with the policy questions, there was great disparity between what district staff thought schools were doing and what school staff reported they were doing. It is important to note that districts were not selected to be representative of the state. Schools participating in the survey were sampled to be representative of the state but not necessarily representative of their district. Now that middle schools can compete for grant money over and above what they receive as entitlement through the district, not all schools in a district are necessarily implementing programs equally. Most likely the district coordinator responses were influenced by their assessments of the overall implementation of TUPE in all schools in the district, even if the particular school being evaluated did not happen to feature the program or TUPE program component being taught elsewhere in the district.

As noted in Chapter 4, the primary method of instruction still seems to be classroom discussion and lecture. When asked about the method of delivery of the tobacco lessons, 91.5 percent (95% CI: [86.2, 94.9]) of teachers, 86.8 percent (95% CI: [75.0, 93.5]) of school coordinators, and 97.5 percent (95% CI: [90.6, 99.4]) of district coordinators marked class discussion. Lecture (77.5. percent; (95% CI: [68.1, 84.7]) was the next most frequently marked method by teachers followed by small group activities (41.9 percent; (95% CI: [31.7, 52.9])), and student worksheets (35.3 percent; 95% CI: [25.0, 47.2]). About half of teachers (52.3 percent; 95% CI: [41.2, 63.2]) reported that school coordinators and/or district administrators make the decision about the curricula used, and 48.7% percent ;(95% CI: [39.6, 57.9]) marked that teachers make the decision. A truly effective TUPE program should feature all of the recommended TUPE components but teachers seemed reluctant to employ the most interactive of the recommended components, namely role-playing. Increased teacher training in how to conduct TUPE lessons might remedy this problem. Additionally,

information about the science-based rationale for selecting the curriculum and the importance of fidelity of implementation are essential components of the TUPE training curriculum.

CDC Guideline Number Four: Provide Program-specific Training for Teachers.

Responses to questions addressing CDC Guidelines four, five, and six are reported in Table 6.6. Twenty-three percent (23.3 percent; 95% CI: [14.4, 35.4]) of school coordinators and 17.8 percent of teachers (95% CI: [10.7, 28.1]) reported receiving one or more days of in-service training for tobacco use prevention, with 22.4 percent (95% CI: [14.8, 32.3]) of teachers reporting that they were trained to deliver a specific published tobacco curriculum. These numbers are slightly lower than the numbers reported in the previous 2005-2006 IETP report. However a greater proportion of school coordinators reported that they felt prepared to teach about tobacco use prevention (48.7 percent; 95% CI: [38.0, 59.4]) a six percentage point increase from the corresponding findings two years earlier, and 30.4 percent (95% CI: [22.5, 39.6]) of teachers felt they were prepared “a great deal” to teach about tobacco use prevention. Teacher training (substitute coverage or training rates) is one of the most costly components of implementing a specific tobacco use prevention curriculum. With reductions in TUPE entitlement funding, schools may not have the resources to pay for training new teachers. Moreover, beginning in 2009-10 all middle and high school TUPE funding will be from competitive grants. Entitlement funding used to ensure that small school districts without the staff needed to complete competitive funding proposals would nevertheless obtain TUPE resources. With future TUPE grant funding coming only from competitive grants, small school districts without the staff needed to complete competitive funding proposals will no longer get TUPE resources. It is also possible that teachers were trained in years prior to completing the survey and this training is not reflected in their responses to this item. Furthermore, the increased pressure to keep teachers in the classroom to improve student test scores makes

it challenging to schedule trainings during the regular school day so that teachers can attend TUPE trainings, and contract language often discourages teachers from taking on extra work even if they are compensated for working after hours and/or on weekends.

CDC Guideline Number Five: Involve Parents or Families in Support of School-based Tobacco Use Prevention Programs.

School staff and district coordinators were asked questions about parent involvement as well. Table 6.6 describes the percentages of teachers, school coordinators, and school administrators reporting use of a variety of strategies for involving parents in school-based tobacco control efforts and who reported using them to a “modest extent” or “very great extent”. The results show similar patterns as results reported in previous TUPE evaluations, with 70.8 percent (95% CI: [59.3, 80.2]) of school administrators and 52.4 percent 95% CI: [41.1, 63.4]) of school coordinators responding that tobacco materials were distributed to parents. Eleven percent (11.2 percent; 95% CI:[6.4,18.9]) of teachers set up displays at open house, and 9.7 percent (95% CI:[5.7,16.0]) included parents in homework assignments. The discrepancy between teachers' ratings and ratings by the other staff on these questions is cause for concern. The teachers' low ratings may reflect the difficulty that schools generally have in involving parents in any optional school-based activities (Hemann & Earle, 2000), particularly low-income, single parents (Kohl et al., 2000). The literature makes clear the importance of the influence of parents on their children's proclivity to take up the tobacco use habit (Distefan et al., 1998; Simons-Morton et al., 2001). What is not so clear is whether schools have the necessary resources and strategies to effectively capitalize on this acknowledged impact of parents on their children's tobacco use habits (Seitsinger et al., 2008).

CDC Guideline Number Six: Support cessation efforts among students and all school staff who use tobacco.

Table 6.6 also shows the responses of teachers who taught prevention lessons during the last school year, and responses from school and district coordinators regarding smoking cessation resources at school. About half of schools seem to have some type of smoking cessation resource on campus that students can use. Forty-four percent (44.0 percent; 95% CI: [33.4, 55.2]) of teachers, 47.8 percent (95% CI: [37.1, 58.8]) of school coordinators, and 62.5 percent (95% CI: [52.0, 71.9]) of school administrators responded 'yes' when asked if their school had special classes, groups, or programs for students who want help quitting smoking. Thirty three percent (32.5 percent; 95% CI: [23.1, 43.6]) of teachers, 42.5 percent (95% CI: [31.6, 54.1]) of school coordinators, and 27.1 percent (95% CI: [19.1, 37.0]) of school administrators reported that there were resources for staff or teachers if they wanted help in quitting their tobacco use. These rates are lower for school coordinators and school administrators than corresponding rates observed in the 2005-06 IETP.

Typically, high schools are more likely to offer cessation programs at the school level than middle schools, because there are relatively few regular student smokers in grades 6-8 compared to the number of student smokers in grades 9-12. It is not unusual for schools to collaborate with community-based agencies to provide services that are more successfully conducted away from the school setting. For example, the American Lung Association, local tobacco control programs, and other health-related agencies provide tobacco-related services including cessation. One barrier to conducting smoking cessation classes at school is that students have to be pulled out of class or have to find transportation to attend Saturday school off campus. Another challenge to providing cessation classes on campus is that there are often not enough students at any given time to participate in group cessation classes. Teachers or other program facilitators must be paid to work on Saturdays or be compensated to work during their regularly scheduled conference period. Moreover, teachers are not always willing to release students, especially high-risk students, from course work to attend cessation classes during school time.

Positive Consequences of Receiving Tobacco Prevention Education (TUPE) Funds

As found in Table 6.7, nearly forty percent (38.7 percent; 95% CI:[2.4, 56.5]) reported that they received funding for tobacco use prevention education, but not enough. Funding to implement health programs was the most frequently marked positive consequence for school coordinator and administrator's report. The most frequently marked options by district coordinators, in order, were: forcing school or district to be held accountable (74.0 percent; 95% CI:[59.0, 84.9]), funding to implement health programs (72.7 percent; 95% CI:[57.7, 83.8]), funding to provide training and substitute coverage (70.7 percent; 95% CI:[55.1, 82.6]), links with community based organizations (67.4 percent; 95% CI:[50.9, 80.5]), and links with local lead health agencies (64.5 percent; 95% CI:[47.3, 78.5]). As might be expected, higher percentages of district coordinators responded "yes" on these items than did teachers or school administrators. TUPE funding is allocated directly to districts, and although the amount of funding is determined based on enrollment of students at schools included in the TUPE grant proposals, there is disparity among districts as to how the money is allocated to the school sites. The funding is allocated to the districts based on the average daily attendance reports for the district. Individual school sites are not directly funded through the entitlement or competitive grant programs, although the amount of money allocated to districts for the competitive grants is calculated based on the enrollment at the schools listed in the grant. Districts may choose to fund staff at the district level to provide services to the schools; they may offer a menu of materials and trainings that schools can choose to include in their TUPE program; or they may choose to fund a school site coordinator to implement TUPE related activities at their school. How the funding is utilized is at the discretion of the district.

Barriers to Teaching Tobacco Use Prevention

Lack of time was the most frequently cited barrier to teaching tobacco lessons across the different types of adult respondents except for teachers. The most

frequently rated barrier for teachers was tobacco use prevention education not being recognized as an official part of curriculum. Interestingly, district coordinators cited lack of time more frequently (66.3 percent; 95% CI:[39.2, 85.7]) than school site staff; teacher (31.1 percent; 95% CI [26.3, 36.4]); school coordinator (43.1 percent; 95% CI [32.5, 54.3]); school administrator (56.4 percent; 95% CI [45.9, 66.3]). There was more congruence in responses with respect to several other barriers such as (1) our school administrator has not made tobacco use prevention a high priority (range = 11.8 percent to 21.4 percent); (2) tobacco use prevention is not mandated in my school/district (range = 6.7 percent to 13.5 percent); (3) tobacco use prevention is not part of normally assessed student outcomes (range = 20.4 percent to 30.3 percent). Sixty-five percent (64.6 percent; 95% CI: 59.2, 69.5) of teachers reported that tobacco use prevention education was not part of their regular curriculum. Thirty-seven percent (36.9 percent; 95% CI:[17.1, 62.3]) of district coordinators responded that the requirement to use only science-based programs as required by the No Child Left Behind Act was a barrier compared to only nineteen percent in 2005-06 IETP and nearly forty percent who reported so in 2003-04 IETP evaluation. When asked how the science-based requirement affected the TUPE program, the most commonly cited response was that new curriculum had to be purchased, thus increasing the cost of materials and teacher training. Additionally, the science-based curricula are more challenging to implement and require more days to be allocated to teaching only about tobacco in an already full schedule. On the other hand, some reported that it strengthened their program by making it more “grounded” and gave them more “power” and authority with the schools.

Summarizing the findings from the adult surveys we find that the major benefits of TUPE funding include increased resources to support the implementation of science-based programs and the enablement of links to community programs and local health agencies. The major barriers to TUPE implementation in the school, especially from the teacher perspective, include lack of mention of tobacco in the standard curriculum, lack of time in the face of competing priorities, lack of

adequate resources, and lack of accountability in the form of regular state testing of students' knowledge of TUPE.

Qualitative Data from Interviews, Annual Reports, and Proposals

The interviews were conducted with district coordinators (n=18), school coordinators (n=13) and teachers teaching tobacco lessons (n=3).

The technique of collecting data from multiple sources to balance the strengths and weaknesses of each source and thus maximize confidence in the data is referred to as triangulation. The interviews, Annual Reports, and TUPE Competitive Grant proposals served as the data sources used in the current implementation of this technique. Interpretation of the resulting findings is discussed below.

For the interviews, a list of schools was generated using two criteria: (1) overlap schools from the 2005-06 In-School Evaluation Survey, and (2) schools with staff who had good understanding of the TUPE program at their school (based on notes taken during school recruitment). District coordinators, school TUPE Coordinator, or equivalent, and a teacher designated to teach tobacco use prevention were recruited for the interviews. A total of eighteen districts, thirteen schools (three middle and ten high schools) provided sufficiently complete interview data to be included in the final sample of schools. Only three teachers responded to multiple requests to participate in the interview, in part, because the requests came in June when teachers were involved in end-of-school-year activities. The aim was to conduct a more 'in-depth' and qualitative look at TUPE programs within the school setting. The schools and districts were selected to be illustrative rather than representative of other California schools.

WestEd staff used scripted interview questions designed specifically for the district level respondent, school TUPE Coordinator, and a teacher designated to teach evidence-based curricula. The Annual Reports and proposals (for schools with TUPE grants) were reviewed for the schools in the interview sample. Data from the three sources were reviewed for recurring themes and characteristics as well as to identify anomalous or unique features of the school's TUPE programs. Because interviews involved only a small proportion of the schools that participated in the IETP, the findings should be viewed as illustrative only, reflecting only TUPE programs that were in place at this subset of schools.

To promote the most effective use of limited resources and to fund effective comprehensive programs that demonstrate progress toward preventing and/or reducing the use of tobacco, the CDE supports the Principles of Effectiveness as adopted by the United States Department of Education and required by the No Child Left Behind (NCLB) Act of 2001. These principles serve as the basis for considering TUPE competitive grant applications and cover the following: (1) conducting an assessment, (2) setting performance measures, (3) employing effective science-based programs, (4) analysis of data, (5) parent involvement, (6) periodic evaluation, and (7) use of evaluation results. They served as the basis for the interview questions for the qualitative data.

Interviews: Description of Sample

Of the 18 district coordinators participating in the interviews, 15 received a stipend and 12 received a percent of their salary (percent of FTE) as compensation for serving as the district TUPE Coordinator. Three did not respond to the question of compensation. The percent of the FTE ranged from 5 percent to 90 percent FTE with nine (just over half) of the 15 providing data reporting that the percent time allocated for them to work on tobacco-related projects was 0.25 FTE or less. Four of the eighteen districts included in sample served high school students (grades 9-12) only.

District coordinators were asked about funding for Grade 4-8 entitlement grants, middle school (6-8) competitive grants, and high school (9-12) competitive grants. All of the districts serving grades 4-8 (n=14) received Grade 4-8 TUPE Entitlement funds between the 2004-05 and 2007-08 school years. The number of schools receiving entitlement funding ranged from four to 85 schools within these districts. Four districts served four to eight schools; two served 13 to 18 schools; five served 24 to 36 schools; and one district served 85 schools. Of the districts serving students in grades K-8, 10 did not have any middle school competitive TUPE grant.

Of the four districts responding that they received a competitive middle school grant, two were funded between 2004-05 and 2007-08 and one received a grant for the 2008-09 to 2010-11 cycle. The number of schools included in the middle school grants ranged from one to 18. Twelve of the districts had competitive high school grants, and ten of those received funding during the 2005-06 to 2007-08 school years. Several districts received funding for multiple grant cycles. One district reported receiving the grant for three different funding cycles, three districts received the grant twice, and eight received a competitive high school TUPE funding grant just one time. One district funded twenty-one different high schools with their competitive high school TUPE grants.

Interviews: District Coordinators

For the interviews with the 18 district coordinators, the six components of the Principles of Effectiveness (POE) were rated on a scale of 1 to 5 with 5 being “excellent”. The components are: (1) conducting an assessment, (2) setting performance measures, (3) employing effective science-based programs, (4) analysis of data, (5) parent involvement, (6) periodic evaluation, and (7) use of evaluation results. Involving parents was the lowest rated component (mean 3.25)

followed by setting performance measures (mean = 3.81) and conducting periodic evaluations (mean = 3.91). The highest were employing science-base programs (mean = 4.375), using evaluation results to adjust goals and objectives (mean= 4.28) and conducting needs assessment (mean = 4.19). All districts reported that school staff coordinators are expected to disseminate TUPE information and they did so using a variety of methods including posting information in all classrooms, parent newsletters, health fairs, meetings with staff, and announcements about cessation programs. All district coordinators said that they used the California Healthy Kids Survey (CHKS) to assess the effectiveness of their TUPE program.

When asked about use of Title IV: Safe and Drug Free Schools or other funding to support tobacco use prevention education, all of the district level coordinators reported using Title IV funds to support tobacco education and nine reported using other funding in addition to TUPE and Title IV. Some of the other funding sources identified were: (1) Proposition 49 “After School Education and Safety” program (ACES after school program), (2) general fund, (3) health department, mini-grants, (4) community-based organization CBO -sponsored pizza parties and cessation fund raising, and (5) CBO -sponsored assemblies.

In an attempt to obtain more detailed information about how the TUPE program was implemented in each district the coordinators were asked to explain how their program was structured and implemented. The majority of districts have a part-time, designated TUPE coordinator at the school level in addition to the district-level TUPE coordinator. In addition to coordinating TUPE at the school, the school liaisons also serve as: counselors, Student Assistance Program staff, school nurses, and teachers. Only one district said that the district coordinator works directly with the teachers to organize trainings and events. The district TUPE coordinator responsibilities include grant-writing, overseeing advisory committee meetings that meet several times a year, meeting with middle and high school coordinators to plan events, and overall administration of the TUPE Program

(complying with CDE requirements). The school level coordinators are responsible for conducting smoking cessation programs (TEG/TAP), organizing school-wide events such as Red Ribbon Week and Great American Smoke Out, working with teachers assisting with prevention lessons, and serving as peer resource teachers training students to become experts and do class presentations. For schools receiving grades 4-8 entitlement funding, the emphasis is on tobacco use prevention for the middle school students.

When asked about the number of teachers responsible for teaching science-based programs, five said “all of them” or all of a particular grade level (i.e. 7th and 9th grades). Thirteen districts paid for teachers to attend district trainings and program developer-leader training. Eleven reported that the school TUPE leaders provided training to their teachers at their schools, and five reported that the teachers were given the curriculum and expected to learn it on their own. Five districts used three of the training techniques, four used all four techniques, four used two techniques, three used only one technique, and one did not use any of the training techniques listed but reported using email communication about current issues, district training booklet, train the trainers model one on one as requested, conferences, modeling lessons, in the classroom, and informal networking. Trainings are typically offered annually at the beginning of the school year, and seven districts train as needed or two to three times per year. In general, the interview responses were consistent with the survey findings regarding responsibility for teaching about tobacco. In other words, there is a consensus that teachers, not TUPE coordinators and not school administrators are responsible to teach TUPE classes. Similarly, there is consensus that it is more appropriate to have science and physical education teachers teach TUPE classes, than it is to have literature, history and art teachers teaching TUPE classes.

Content areas in which science-based programs are taught were the same as noted in the adult surveys: (1) K-5 across curriculum, (2) science/biology, (3)

health, (4) physical education (5) social studies, (6) history/social science, and (7) life science. Fidelity is assessed using a variety of techniques including lesson delivery logs, classroom observations by principal and/or district TUPE Coordinator, end of year survey, and teacher evaluation of program at the end of the school year. The district coordinators rated their districts on how well teachers were trained using a five-point scale, with five being “excellent”. The mean response was 4.15 (range = 3 to 5).

When asked about suggestions for improving teacher training, more or more stable funding and release time for teachers were the most commonly mentioned ways for improving teacher training. A few district coordinators thought that better and more frequent collaboration or communication between districts and schools or relieving the pressure on teachers to raise their students' test scores would improve the quality of, and opportunities for, teacher TUPE training.

Coordinators were asked to identify the curricula used for their Grade 4-8 entitlement TUPE program and their competitive middle and high school programs. The results parallel the findings in the surveys, with Too Good For Drugs, Botvin's Life Skills, Lion's Quest, Get Real About Tobacco, and Project ALERT the most commonly noted programs used across programs. The high school programs also used smoking cessation programs and curricula for pregnant and teen mothers. Many of these programs are not tobacco-specific and are used to meet the requirements of the Title IV Safe and Drug Free Schools program regarding implementation of science-based programs. They include strategies to prevent alcohol, tobacco, and other drug use. Because the strategies used for the prevention of student use of all illicit substances are similar, this merging of prevention resources allows schools and districts to maximize limited classroom time and resources.

Interviews: District Coordinators with Competitive Grant

Larger districts did not report as many deterrents to applying for the competitive grants as smaller districts. Comments about the process included recommendations about the forms in the RFA being too repetitive and “inconvenient”, too much paperwork, not enough resources/time to prepare the proposals. Smaller districts felt that larger districts had an advantage over smaller districts because the larger districts typically have the resources to pay for grant writers to assist with the applications. One district coordinator felt that the review process was not objective. The amount of time noted to prepare the proposals ranged from 25 hours to months (for meetings with schools, Tobacco Control Coalition, county public health). The majority used the CHKS, the Healthy Kids Resource Center, and the Local Lead Health Agency as resources when writing the proposal. None of the district coordinators interviewed reported that they would have the capacity to continue implementing TUPE at the level currently implemented with funding from the competitive grants. This was partly because there is limited time during the school day to teach information that would not be included on the standardized tests.

Interviews: School site coordinators

The interviews of the school coordinators resulted in similar findings as those of the district coordinators regarding responsibilities for implementing TUPE at the school level, types of programs offered, parent involvement, factors that help coordination between district and schools, and dissemination of tobacco use prevention information. School level coordinators felt that use of peer to peer education, offering more coping skills and opportunities for students to participate in support groups as the most effective methods for tobacco prevention and cessation. Two of the school coordinators described the specific referral system used to help staff, parents, students obtain information about cessation. Others were not aware of anything or if previous systems were in place.

When asked about how the TUPE program at their school could be improved, the coordinators provided several suggestions. With regard to teaching the science-

based programs, some comments for improvement were: (1) have someone other than the teacher provide the lessons, (2) update the information for high school students because it is too elementary and not up to date, (3) provide more detail about the programs and offer more instructional support and (4) provide more information for students such as Power Point presentations with statistics about teens and health. Regarding the tobacco policy, one felt that it could be more effectively enforced if security guards were reminded to issue referrals and/or citations to violators and if they were held accountable for enforcing the policy. Barriers to implementing the program were mostly fiscal and included (1) lack of continuity because of turnover in part time school coordinators, (2) liability issues around transportation for students to attend events, (3) lack of funding for incentives for students (field trips/activities), and (4) failure to provide funding directly to teachers. All of these barriers influence the scope and depth of how programs are implemented in the schools. Additionally, if teachers have some control over funds, they would have more flexibility in how they implement the TUPE program and may therefore be more motivated to implement with fidelity.

Interviews: Teachers

Only three teachers responded to requests for interviews. They were asked to respond to 10 questions about the TUPE program at their school. Two of the three knew that their school had a TUPE grant and were involved in writing the grant or were at least aware that the district was applying. The curricula used at the three schools were Project ALERT, Toward No Drug Use, Missing Link, and the Minnesota Smoking Prevention Program and all were trained to use the programs. Two teachers taught all of the lessons and all three modified the lessons based on time constraints, student comprehension, student engagement, augmenting with other materials from the Lung Association, American Cancer Society, American Heart Association, and supplemental visual aids, videos, and homework assignments. When asked to rate the TUPE programs they were teaching on a scale of 1 “poor” to 5 “excellent” they rated the training highest (mean 4.33) and

the developmental appropriateness (mean = 2.33) and student engagement (mean = 2.33) lowest. The low scores for developmental appropriateness and student engagement may be related to the judgment by some teachers that the science-based programs were not suitable for older high school students because they were developed for 7th graders, not 12th graders.

Summary of Interviews

The results presented here are not intended to reflect the full range of TUPE programs in all schools, but instead are meant to provide a deeper understanding of how TUPE is being implemented at a small cross-section of participant schools. However, the findings from the qualitative data do converge with the findings from the adult survey data, thereby corroborating the survey results. Consistent with the findings from the previous 2005-06 IETP obtained during the recruitment of school site coordinators for the interview was the high turnover rate. Some of this turnover is a result of the inconsistency of funding amounts for the grade 4-8 entitlements and variability of TUPE funding for the high school grants. This may explain some of the discrepancy between what district administrators and school coordinators report in both the interview and survey data. With the elimination of all entitlement funding beginning in the 2009-10 school year, the variability in TUPE funding for elementary school students will only be exacerbated.

The results are aligned with the components noted in the Principles of Effectiveness. The majority of adults interviewed said that a needs assessment was conducted using multiple methods including biennial administration of the California Healthy Kids Survey (CHKS). Schools used the results of the needs assessment to inform decisions about the kinds of activities and curricula they wanted to implement. They also used the findings to set performance measure targets around student tobacco use, as required by the Principles of Effectiveness, and for the periodic evaluations for CDE. For example, schools might look at the 7th or 9th grade results from year to year to assess change in smoking initiation

rates or the proportion of students who say they want to quit smoking, in addition to the more commonly used 30-day prevalence.

As was found in the previous three IETP reports, TUPE programs varied greatly from school to school. Each program emphasized different aspects of tobacco use, from prevention, to media literacy, to the biology of the tobacco plant. Some programs were sustained throughout an entire year, while others were offered during specific semesters, and still others simply prescribed a certain number of hours of TUPE lessons that each student should receive over the course of the year. In the middle schools, tobacco prevention was taught at all grade levels, primarily in health, science and PE. Most high schools offered tobacco prevention education in 9th grade only, some in 10th grade; there was therefore little, if any, tobacco prevention education in 11th and 12th grade. The majority of high schools offered tobacco education in health, biology, and peer mediation classes. What was different for the 2007-08 IETP is the higher percentage of districts and schools noting that they were using science-based programs in their schools, regardless of funding status. Teacher reports showed that 38% of teachers now report using a science-based curriculum whereas the corresponding percent was 18% in 2005-2006.

Slightly more than 71 percent of district coordinators surveyed reported using TEG and TAP (smoking cessation and readiness curricula), and these results were supported by the interview data. In self-report surveys, thirty-eight percent (37.6%) of teachers reported using a science-based curriculum in 2007-2008 whereas the corresponding percentage in 2005-2006 was only eighteen percent (17.6%).

Involving parents in meaningful ways continues to be a challenge for districts. The districts that seemed to have a more cohesive program in terms of coordination between district TUPE coordinators, school coordinators, and teachers reported having parents involved in advisory groups and various activities to promote

tobacco awareness. Rather than actively involving parents in decision-making, most schools seem to have more success reaching parents about TUPE activities through newsletters and “back to school” night parent-teacher meetings.

Although not a requirement presently, most schools utilized either an outside or district-based evaluator to assist them with data analyses, for periodic evaluation, and for using the results of the evaluation to inform decisions. That being said, with the emphasis on using science-based programs and the cost of purchasing materials and training teachers to implement the new programs, it would be burdensome for schools to abandon existing programs to purchase new ones should the evaluation suggest that the current programs are not working. One of the most commonly cited challenges of implementing the science-based programs was finding time to adequately train teachers and retain those teachers from year to year to ensure the programs are delivered with fidelity.

Conclusion

Results from the adult surveys were mixed, depending on the respondents' positions. As indicated in the 2005-06 IETP, several reasons may contribute to the mixed results.

First, schools were not sampled by district and cannot be considered to be representative of a district unless the school responding was the only school in the district. It is likely that the district coordinator would know about the TUPE program features common to all the schools in the district but also likely that the district administrator would be less aware of TUPE program features that were unique to a specific school. Because funding for TUPE programs is disparate across the State, it is likely that TUPE-funded schools could afford TUPE program features not shared with other schools in the district. Some districts have only high schools, which means that the only tobacco funding for their schools could be obtained only through the competitive grant process. Districts serving grades 4-8 receive entitlement funding for TUPE, and some of their middle schools may receive

funding through the competitive grant process as well. It is therefore often the case that districts may have a tobacco use prevention plan that is not implemented universally across schools. Overall, schools seem to be implementing a variety of tobacco education programs ranging from one-day events to full semesters of research-based curricula. Moreover, more school staff are aware of science-based programs and report using them compared to previous years. This is consistent with teacher reports, which showed that 38% of teachers now report using a science-based curriculum whereas the corresponding percent was 18% in 2005-2006.

As with the previous IETP report, there are some findings that are discouraging. The lack of consistency in school level and district level staff responses to questions about communicating about the consequences for violating the tobacco policy at their school/district was a concern. Twenty-nine percent (29.0%) of TUPE-experienced teachers reported that they were not sure or did not know what happened to students caught violating the school's no-smoking policy whereas the corresponding percent of district TUPE coordinator who did not know or weren't sure was one percent (1.2%). Of those teachers who did "know" what their school policy was, twenty-nine percent (28.8%) believed that a consequence of a student being caught smoking on campus was that the student's parents were called in for a conference with school staff. The corresponding percent for district staff was fifty-one percent (50.8%), for school administrators was fifty-five percent (55.4%) and for school TUPE coordinators was thirty percent (30.4%). All school staff reported having a smoke-free school policy and most reported that it was being enforced, but it was clear from the variability of responses that the district and the schools were failing to communicate to all staff what the consequences would be of violating the school's smoke-free policy. A successful program would ensure that all school staff, students, and parents were familiar with the policy and familiar with the consequences of violating it.

Training for teachers continues to be a challenge for districts. It is increasingly difficult for teachers to be released from their classroom teaching responsibilities to attend all day trainings in tobacco use prevention. It is equally difficult to persuade teachers to attend Saturday trainings or trainings during breaks (winter/spring). Trainings after school for one or two hours do not provide teachers with enough information to teach research-based programs. Moreover, it is questionable how effective those trainings can be after the teachers have been with as many as 150 students over the course of a day in secondary schools. If schools are required to use only science-based programs for tobacco prevention education, teachers must have opportunities to attend trainings to ensure the programs are taught with fidelity.

An ongoing concern is the discrepancy between district and school staff regarding implementation of TUPE components and with whom the responsibility lies for various components such as teaching lessons, training, and policy enforcement. As with previous IETP findings, the districts seem to be reporting the best-case scenario, and the school staff tends to report a variant of that scenario. However, when talking with school coordinators and teachers and comparing the answers with previous adult surveys, it appears that the TUPE program is being implemented with increasing fidelity and that use of the Principals of Effectiveness as a guide for implementation and monitoring of the program is increasing. This is evident in the increased percent of TUPE teachers who say that the curriculum they are now using is science-based. Again, all stakeholders would benefit from increased research into how the school environment and behavior of its adults prevents and/or facilitates smoking-related behaviors among students. Additionally, a closer look at how the expectations are communicated from CDE to districts receiving TUPE funding, how compliance with those expectations are being monitored, what corrective actions are taken if necessary, and how the districts are to monitor implementation of the activities proposed in the competitive grants at the school-level is warranted.

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TABLES

Table 6.1 Staff Reports of Adherence to CDC Guidelines Component 1: Tobacco Use Policies and Enforcement

	Teacher ¹	School Coordinator	School Administrator	District Coordinator
	(Percent)	(Percent)	(Percent)	(Percent)
	[CI]	[CI]	[CI]	[CI]
<u>To whom the policy applies</u>				
Students	86.7% [83.4, 89.5]	86.8% [76.8, 92.8]	96.1% [85.0, 99.1]	—
Teachers and staff	87.0% [83.9, 89.7]	83.7% [73.1, 90.7]	89.9% [79.0, 95.5]	—
School visitors	80.7% [77.4, 83.6]	80.3% [69.7, 87.8]	89.9% [78.9, 95.5]	—
Don't know	7.0% [5.1, 9.5]	12.6% [6.6, 22.7]	4.4% [1.2, 14.9]	—
<u>Responsible for enforcing the policy at school</u>				
Administrators	90.2% [87.4, 92.4]	98.3% [95.3, 99.4]	100.0% [—]	—
Faculty and staff	81.2% [77.2, 84.7]	79.5% [69.3, 86.9]	74.7% [64.4, 82.8]	—
Security guards	76.9% [72.4, 80.8]	74.4% [62.9, 83.3]	86.5% [77.8, 92.1]	—
Students	16.1%	14.5%	15.5%	—

Table 6.1 Staff Reports of Adherence to CDC Guidelines Component 1: Tobacco Use Policies and Enforcement

Teacher ¹	School Coordinator	School Administrator	District Coordinator
(Percent)	(Percent)	(Percent)	(Percent)
[CI]	[CI]	[CI]	[CI]
[13.2, 19.4]	[8.6, 23.5]	[9.6, 24.1]	

Table 6.1 Staff Reports of Adherence to CDC Guidelines Component 1: Tobacco Use Policies and Enforcement

	Teacher ¹	School Coordinator	School Administrator	District Coordinator
	(Percent)	(Percent)	(Percent)	(Percent)
	[CI]	[CI]	[CI]	[CI]
<u>Policy enforced during school hours</u>				
A great deal	84.3% [79.6, 88.1]	75.8% [64.2, 84.6]	97.5% [94.0, 99.0]	84.3% [70.7, 92.3]
Moderately	11.5% [8.6, 15.2]	18.6% [11.3, 29.2]	2.5% [1.0, 6.1]	14.4% [6.8, 27.8]
Not too much	2.7% [1.4, 5.1]	5.1% [1.4, 16.7]	0.0% [—]	1.4% [0.3, 5.8]
Not at all	1.5% [0.6, 3.8]	0.5% [0.1, 3.4]	0.0% [—]	0.0% [—]
<u>Consequences for student's offenses on school ground</u>				
Suspension	51.5% [47.0, 56.0]	66.3% [57.5, 74.1]	70.6% [60.9, 78.7]	68.8% [51.6, 82.1]
Getting a ticket	11.2% [8.2, 15.0]	32.3% [22.6, 43.7]	42.9% [32.0, 54.5]	33.3% [19.9, 50.1]
Referred to a special class	10.4% [7.7, 13.8]	27.2% [18.6, 37.9]	34.3% [25.4, 44.5]	30.3% [17.9, 46.3]
Choose to attend a special class in lieu of suspension	3.0% [1.9, 4.8]	18.3% [11.6, 27.6]	17.6% [12.1, 25.0]	36.4% [21.6, 54.3]
Referred to an adult counselor	17.0% [13.5, 21.2]	31.4% [22.4, 42.0]	39.5% [29.5, 50.5]	40.8% [24.6, 59.2]

Table 6.1 Staff Reports of Adherence to CDC Guidelines Component 1: Tobacco Use Policies and Enforcement

	Teacher ¹	School Coordinator	School Administrator	District Coordinator
	(Percent) [CI]	(Percent) [CI]	(Percent) [CI]	(Percent) [CI]
Referred to a peer counselor	4.7% [3.1, 6.8]	6.2% [3.1, 12.3]	15.1% [8.7, 24.9]	15.6% [7.6, 29.3]
Punishment for smoking	8.3% [6.3, 10.9]	24.2% [15.9, 35.0]	33.0% [23.7, 43.9]	12.3% [5.9, 23.9]
Parents are called in	15.2% [12.3, 18.6]	34.1% [24.4, 45.2]	54.1% [43.4, 64.4]	46.0% [28.0, 65.2]
Referred to a cessation clinic	4.0% [2.8, 5.7]	21.4% [13.9, 31.4]	23.1% [15.6, 32.8]	62.3% [44.4, 77.3]
Required to go to Saturday school	2.3% [1.2, 4.2]	7.3% [4.0, 12.7]	14.8% [8.7, 24.2]	43.0% [23.1, 65.5]

Note: ¹ All teachers

Table 6.2 Teacher Reports of Adherence to CDC Component 1 – Tobacco Use Policies, by Subject Matter Taught by Middle/High School Teachers

	Teacher Who Teach Health- Related subject(s) ¹ (Percent) [CI]	Teachers Who Do Not Teach Health- Related subject(s) (Percent) [CI]
<u>To whom the policy applies</u>		
Students	86.5% [77.0, 92.4]	86.8% [83.0, 89.8]
Teachers and staff	86.7% [75.7, 93.1]	87.1% [83.8, 89.8]
School visitors	83.5% [73.7, 90.2]	80.2% [76.5, 83.5]
Don't know	4.4% [1.9, 9.9]	7.5% [5.4, 10.4]
<u>Responsible for enforcing the policy at school</u>		
Administrators	88.1% [78.4, 93.7]	90.5% [87.3, 93.0]
Faculty and Staff	79.1% [69.1, 86.5]	81.6% [77.1, 85.4]
Security Guards/School Resource Officers	59.9% [46.4, 72.0]	79.9% [75.2, 83.8]
Students	17.5% [10.4, 27.9]	15.8% [12.6, 19.7]
<u>Policy enforced during school hours</u>		
A great deal	90.9% [80.1, 96.1]	83.1% [77.6, 87.4]

Table 6.2 Teacher Reports of Adherence to CDC Component 1 – Tobacco Use Policies, by Subject Matter Taught by Middle/High School Teachers

	Teacher Who Teach Health- Related subject(s) ¹ (Percent) [CI]	Teachers Who Do Not Teach Health- Related subject(s) (Percent) [CI]
Moderately	4.4% [1.5, 12.0]	12.8% [9.5, 17.0]
Not too much	0.0% [—]	3.2% [1.6, 6.0]
Not at all	4.7% [1.1, 18.1]	0.9% [0.3, 2.8]
<u>Consequences for student's offenses on school ground</u>		
Suspension	57.3% [43.3, 70.2]	50.5% [45.8, 55.2]
Getting a ticket	17.1% [8.7, 31.0]	10.1% [7.6, 13.3]
Referred to a special class	4.6% [1.7, 11.7]	11.4% [8.4, 15.3]
Choose to attend a special class in lieu of suspension	3.6% [1.1, 11.3]	2.9% [1.7, 4.7]
Referred to an adult counselor	26.5% [15.9, 40.8]	15.3% [11.9, 19.5]
Referred to a peer counselor	1.8% [0.7, 4.7]	5.1% [3.4, 7.7]
Punishment for smoking	5.9% [2.7, 12.4]	8.8% [6.5, 11.6]

Table 6.2 Teacher Reports of Adherence to CDC Component 1 – Tobacco Use Policies, by Subject Matter Taught by Middle/High School Teachers

	Teacher Who	Teachers Who Do
	Teach Health-	Not Teach Health-
	Related subject(s) ¹	Related subject(s)
	(Percent)	(Percent)
	[CI]	[CI]
Parents are called in	21.3% [13.8, 31.3]	14.2% [11.3, 17.7]
Referred to a cessation clinic	2.6% [1.0, 6.9]	4.2% [3.0, 6.0]
Required to go to Saturday school	2.8% [1.2, 6.7]	2.2% [1.1, 4.4]

Notes: ¹Science and Health teachers in middle and high schools.

Table 6.3 Staff Reports of Use of Science-based Program at Middle Schools

	School Coordinator (Percent) [CI]	District Coordinator (Percent) [CI]
Botvin's LifeSkills™ Training	0.0% [—]	16.2% [3.4, 51.7]
Minnesota Smoking Prevention Program	0.0% [—]	42.1% [7.9, 86.0]
Project ALERT	43.8% [21.9, 68.5]	70.4% [33.9, 91.6]
Project Toward No Drug Abuse (TND)	0.0% [—]	4.7% [0.5, 33.6]
Project Toward No Tobacco Use (TNT)	13.6% [2.0, 54.8]	45.8% [10.4, 86.1]
TAP or TEG (readiness to quit and cessation)	1.7% [0.2, 12.0]	71.6% [37.3, 91.5]
Any of the above	43.8% [21.9, 68.5]	100.0% [—]

Table 6.4 Staff Reports of Use of Science-based Program at High Schools by TUPE Grantee Status

	School coordinator		District Coordinator	
	Grantee	Non-grantee	Grantee	Non-grantee
	(Percent)	(Percent)	(Percent)	(Percent)
	[CI]	[CI]	[CI]	[CI]
Botvin's LifeSkills™ Training	1.4% [0.2, 9.7]	1.7% [0.2, 11.3]	15.9% [4.2, 44.9]	32.7% [16.9, 53.7]
Minnesota Smoking Prevention Program	6.9% [1.9, 22.5]	6.1% [1.3, 24.7]	44.4% [12.3, 81.9]	6.7% [1.7, 22.7]
Project ALERT	8.9% [2.7, 25.6]	8.0% [2.7, 21.4]	56.5% [23.4, 84.7]	44.0% [26.6, 63.0]
Project Toward No Drug Abuse (TND)	31.1% [18.5, 47.5]	15.3% [6.2, 32.8]	68.5% [37.8, 88.6]	33.1% [18.6, 51.7]
Project Toward No Tobacco Use (TNT)	12.4% [4.8, 28.2]	5.7% [1.1, 24.9]	48.9% [16.1, 82.7]	8.9% [2.7, 25.8]
TAP or TEG (readiness to quit and cessation)	46.5% [31.1, 62.6]	18.7% [8.8, 35.7]	87.3% [65.8, 96.1]	41.5% [24.2, 61.2]
Any of the above	61.7% [44.5, 76.5]	29.8% [17.3, 46.3]	96.1% [82.5, 99.2]	81.7% [64.5, 91.6]

Table 6.5 Staff Reports of Adherence to CDC Guidelines Components 2 & 3: Tobacco Use Prevention Education Curriculum – Content.

	Teacher ¹	School Coordinator	District Coordinator
	(Percent)	(Percent)	(Percent)
	[CI]	[CI]	[CI]
<u>Teaching Science-based Curriculum</u>			
Percent of respondents reporting teaching	7.5% [4.1, 13.2]	43.1% [33.4, 53.3]	—
<u>Topics of Instruction</u>			
Effects of tobacco on health	70.3% [61.9, 77.4]	67.4% [56.2, 76.9]	93.8% [87.2, 97.1]
How many young people smoke	35.4% [28.1, 43.5]	57.5% [46.4, 67.9]	63.7% [46.3, 78.1]
Reasons why young people smoke	50.1% [41.5, 58.6]	65.4% [54.2, 75.1]	72.3% [56.8, 83.9]
Cost of using tobacco	—	—	75.4% [61.0, 85.8]
Social consequences of using tobacco	46.4% [38.9, 54.0]	56.8% [45.8, 67.2]	62.9% [37.6, 82.7]
Second-hand smoke	50.3% [40.8, 57.8]	65.9% [54.8, 75.5]	82.0% [69.0, 90.3]
Social influences promoting tobacco use	51.5% [41.7, 61.1]	61.2% [50.2, 71.1]	82.3% [70.6, 90.0]
Behavioral skills for resisting offers	35.5% [27.8, 44.1]	62.3% [51.5, 72.0]	81.9% [69.4, 90.0]
General personal and social skills	35.0% [27.1, 43.8]	50.4% [39.7, 61.1]	65.0% [38.7, 84.5]
Tobacco cessation	23.2%	49.9%	62.9%

Table 6.5 Staff Reports of Adherence to CDC Guidelines Components 2 & 3: Tobacco Use Prevention Education Curriculum – Content.

Teacher ¹	School Coordinator	District Coordinator
(Percent)	(Percent)	(Percent)
[CI]	[CI]	[CI]
[17.2, 30.6]	[39.3, 60.6]	[45.4, 77.6]

Table 6.5 Staff Reports of Adherence to CDC Guidelines Components 2 & 3: Tobacco Use Prevention Education Curriculum – Content.

	Teacher ¹	School	District
		Coordinator	Coordinator
	(Percent)	(Percent)	(Percent)
	[CI]	[CI]	[CI]
Tobacco advertising and marketing	56.4% [45.6, 66.7]	56.3% [45.9, 66.1]	74.8% [59.9, 85.5]
Smokeless tobacco	—	56.6% [46.2, 66.5]	47.6% [27.9, 68.1]
Cigar use	14.0% [9.5, 20.1]	37.2% [27.9, 47.6]	40.2% [20.3, 64.0]
<u>Method of delivery (Somewhat/A great deal)</u>			
Classroom discussion	91.5% [86.2, 94.9]	86.8% [75.0, 93.5]	97.5% [90.6, 99.4]
Small group activities	41.9% [31.7, 52.9]	65.0% [52.9, 75.4]	16.9% [8.9, 29.7]
Lecture	77.5% [68.1, 84.7]	75.4% [63.1, 84.6]	21.5% [10.6, 38.8]
Student worksheets	35.3% [25.0, 47.2]	61.0% [48.4, 72.3]	20.7% [10.6, 36.4]
Environmental strategies	—	32.4% [22.3, 44.4]	—
Family and community collaboration	—	24.2% [16.4, 34.3]	—
Media literacy	—	51.1% [41.7, 60.4]	—
Peer helping/peer leaders	—	43.4% [32.2, 55.4]	—
School policies	—	63.6%	—

Table 6.5 Staff Reports of Adherence to CDC Guidelines Components 2 & 3: Tobacco Use Prevention Education Curriculum – Content.

	Teacher ¹	School Coordinator	District Coordinator
	(Percent)	(Percent)	(Percent)
	[CI]	[CI]	[CI]
Service learning	—	[50.5, 74.9] 19.0% [12.3, 28.2]	—
Tobacco use cessation	—	52.7% [40.2, 64.9]	—
Youth development/caring schools & caring classrooms	—	30.3% [20.8, 42.0]	—
Role-playing	33.7% [23.9, 45.1]	48.3% [35.8, 60.9]	18.7% [9.9, 32.4]
<u>Decision-making about curricula/topics used</u>			
Teacher makes decision	48.7% [39.6, 57.9]	—	1.6% [0.5, 5.3]
School coordinator makes decision	—	30.1% [21.0, 41.1]	2.2% [0.6, 8.6]
District coordinator makes decision	—	—	10.8% [5.8, 19.4]
School/district administrator makes decision	52.3% [41.2, 63.2]	—	—
Other	—	—	85.3% [76.0, 91.4]

Notes: ¹Teachers that taught prevention lessons last year (2006-2007)² "Make all/some decisions" vs. "Make the decisions"

*CDC recommended programs.

Table 6.6 Staff Reports of Adherence to CDC Guidelines Components 4, 5 and 6: Parent Involvement, Teacher Training and Cessation Efforts

	Teacher ¹	School	School	District
		Coordinator	Administrator	Coordinator
	(Percent)	(Percent)	(Percent)	(Percent)
	[CI]	[CI]	[CI]	[CI]
<u>Involvement of Parents and Families (Modest Extent to Very Great Extent)</u>				
Included parents in homework assignments	9.7% [5.7, 16.0]	18.6% [11.8, 28.2]	35.5% [26.0, 46.2]	—
Held meetings with parents	2.2% [0.4, 10.9]	12.3% [7.2, 20.3]	37.3% [27.7, 47.9]	—
Distributed materials to parents	15.3% [10.6, 21.5]	52.4% [41.1, 63.4]	70.8% [59.3, 80.2]	—
Distributed newsletters/educational materials	5.9% [2.6, 12.7]	30.2% [20.6, 41.8]	39.8% [29.7, 50.8]	—
Provided cessation information	5.7% [2.4, 12.8]	34.4% [23.8, 46.8]	33.2% [23.9, 44.0]	—
Displays at open house for parents	11.2% [6.4, 18.9]	36.6% [25.6, 49.0]	34.7% [26.0, 44.6]	—
Invited parents to be guest speakers	0.9% [0.3, 2.4]	10.0% [5.2, 18.5]	13.0% [7.0, 22.8]	—
Involved parents in school related activities	2.6% [0.7, 8.9]	15.6% [9.4, 24.7]	20.3% [12.8, 30.7]	—
Other involvement	2.3% [0.7, 7.5]	34.1% [14.9, 60.6]	61.8% [20.4, 91.1]	—
<u>Professional Development Topics</u>				
Developmental assets	20.4%	45.8%	—	—

Table 6.6 Staff Reports of Adherence to CDC Guidelines Components 4, 5 and 6: Parent Involvement, Teacher Training and Cessation Efforts

	Teacher ¹	School	School	District
		Coordinator	Administrator	Coordinator
	(Percent)	(Percent)	(Percent)	(Percent)
	[CI]	[CI]	[CI]	[CI]
Youth Development	[13.2, 30.1] 22.2% [15.5, 30.6]	[34.0, 58.0] 39.8% [29.7, 50.7]	—	—
Science-based prevention & intervention programs	16.3% [10.8, 23.9]	31.3% [21.9, 42.5]	—	—
Readiness to Quit programs	9.3% [5.2, 15.9]	29.0% [19.1, 41.3]	—	—
Cessation programs	7.9% [4.3, 14.1]	30.6% [20.5, 43.0]	—	—
Distributed a newsletter about the TUPE	—	—	—	33.4% [13.9, 60.8]
Disseminated fliers about the trainings	—	—	—	64.8% [47.7, 78.8]
Distributed a training video	—	—	—	8.4% [3.7, 17.9]
Disseminated information on website or via email listservs	—	—	—	61.2% [43.2, 76.5]
Distributed other resources	—	—	—	57.8% [39.3, 74.3]
Other	2.8% [1.1, 7.0]	22.8% [9.8, 44.5]	—	8.9% [4.2, 17.9]
<u>Teacher Training</u>				
One or more days of In-	17.8%	23.3%	—	—

Table 6.6 Staff Reports of Adherence to CDC Guidelines Components 4, 5 and 6: Parent Involvement, Teacher Training and Cessation Efforts

	Teacher ¹	School	School	District
	Coordinator	Administrator	Coordinator	
	(Percent)	(Percent)	(Percent)	(Percent)
	[CI]	[CI]	[CI]	[CI]
service training	[10.7, 28.1]	[14.4, 35.4]		
One or more tobacco-specific in-service training district sponsored or attended	—	—	—	71.2% [55.6, 82.9]
Were trained to deliver a specific published tobacco use curriculum	22.4% [14.8, 32.3]	—	—	—
Preparedness to Teach (A Great Deal)	30.4% [22.5, 39.6]	48.7% [38.0, 59.4]	—	—
School school administrator supports the TUPE (somewhat or a great deal)	64.0% [54.3, 72.7]	76.9% [64.5, 86.0]	97.3% [82.3, 99.6]	—
District level coordinator/administrator supports the TUPE (somewhat or a great deal)	59.0% [48.5, 68.7]	68.4% [57.3, 77.7]	78.0% [66.5, 86.4]	83.2% [70.6, 91.1]
<u>Cessation</u>				
Resources for students at school	44.0% [33.4, 55.2]	47.8% [37.1, 58.8]	62.5% [52.0, 71.9]	—
Resources for staff/teacher at school	32.5% [23.1, 43.6]	42.5% [31.6, 54.1]	27.1% [19.1, 37.0]	—

Notes: ¹ Teachers who taught prevention lessons last year

Table 6.7 Positive Consequences and Barriers associated with tobacco use prevention education

	Teacher ¹	School	School	District
		Coordinator	Administrator	Coordinator
	(Percent)	(Percent)	(Percent)	(Percent)
	[CI]	[CI]	[CI]	[CI]
<u>Positive Consequences of Receiving Tobacco Prevention Education Funds</u>				
Links with local lead health agencies	—	26.7% [19.3, 35.7]	33.0% [23.8, 43.6]	64.5% [47.3, 78.5]
Links with community based organizations (AHA, ACS, ALA)	—	28.2% [20.5, 37.3]	28.0% [19.0, 39.3]	67.4% [50.9, 80.5]
Funding to implement health programs	—	32.1% [24.6, 40.7]	37.1% [27.5, 47.9]	72.7% [57.7, 83.8]
Funding to provide training and substitute coverage	—	27.3% [20.3, 35.7]	24.8% [16.6, 35.3]	70.7% [55.1, 82.6]
Forces school/district to be held accountable for progress in reducing student tobacco use	—	—	—	74.0% [59.0, 84.9]
Other	—	16.9% [10.7, 25.5]	4.7% [2.5, 8.9]	18.4% [9.9, 31.6]
<u>Barriers of Teaching of Tobacco Use Prevention Lessons</u>				
Tobacco use prevention education	64.6%	11.4%	11.9%	3.7%

In-School Evaluation of Tobacco Use Prevention Education (TUPE) – '07-'08

is not part of my curriculum	[59.2, 69.5]	[7.0, 18.0]	[6.1, 22.0]	[1.0, 12.8]
Tobacco use prevention education is not mandated in my school or district	13.5% [11.0, 16.6]	6.7% [3.2, 13.4]	11.5% [5.7, 21.7]	12.9% [5.8, 26.3]
Tobacco use prevention is not part of student outcomes that are assessed	23.9% [20.1, 28.1]	20.4% [13.6, 29.5]	30.3% [21.1, 41.5]	30.2% [17.6, 46.7]
Our teachers are not interested or committed to it	—	—	15.4% [8.9, 25.2]	—
Lack of adequate instructional materials (or curricula)	13.2% [10.4, 16.5]	16.3% [10.5, 24.6]	16.1% [9.6, 25.6]	7.1% [3.2, 15.1]
Lack of time	31.1% [26.3, 36.4]	43.1% [32.5, 54.3]	56.4% [45.9, 66.3]	66.3% [39.2, 85.7]
Lack of substitute coverage and/or funding to pay for substitutes	3.9% [2.7, 5.6]	13.1% [7.2, 22.7]	11.9% [6.3, 21.1]	12.0% [6.0, 22.5]
Received funding, but not enough	—	—	—	38.7% [23.4, 56.5]
We do not receive TUPE funding	—	—	—	3.8% [1.2, 11.2]
Our school district has not made tobacco use prevention a high priority	11.8% [9.3, 14.8]	21.4% [13.6, 32.1]	19.4% [12.1, 29.5]	19.7% [10.5, 33.9]
Our school administrator has not made tobacco use prevention a high priority	10.4% [8.2, 13.3]	9.3% [5.5, 15.6]	18.7% [11.6, 28.7]	28.9% [16.4, 45.7]
I have not received adequate tobacco use prevention training	21.3% [17.2, 26.1]	13.9% [8.3, 22.2]	20.4% [13.1, 30.4]	6.5% [2.6, 15.0]

In-School Evaluation of Tobacco Use Prevention Education (TUPE) – '07-'08

New CDE requirement to use only science-based programs required by NCLB act	—	—	—	36.9% [17.1, 62.3]
Other	3.5% [2.4, 5.1]	4.0% [2.0, 8.2]	9.8% [5.4, 17.1]	35.1% [15.4, 61.4]

Note: ¹ All teachers

CHAPTER 7: RELATIONSHIP OF SCHOOL-LEVEL POLICIES AND PRACTICES TO STUDENT PROGRAM EXPOSURE

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CHAPTER 7: RELATIONSHIP OF SCHOOL-LEVEL POLICIES AND PRACTICES TO STUDENT PROGRAM EXPOSURE

CHAPTER HIGHLIGHTS

- **The relationships between adult-reported school-level tobacco prevention practices and policies with students' reported TUPE program exposure were consistently stronger in TUPE grant-funded schools than in non-grantee schools. School district support for implementation of tobacco prevention lessons and school-wide anti-tobacco activities was associated with higher likelihood of students having received tobacco-related information and reporting that they found such information useful.**
- **School district support for implementation of tobacco prevention lessons and school-wide anti-tobacco activities were associated with a higher likelihood of students having received tobacco use-related information and reporting that they found such information useful.**
- **Across types of schools, tobacco prevention lessons, supportive consequences of violating no-use policy (teacher and coordinator reports) and use of non-traditional modes of instruction were positively associated with student recall of exposure to selected TUPE program services.**
- **Teacher, coordinator, and administrator reports of availability of cessation programs at school were positively associated with student awareness of cessation services, particularly in TUPE grant-funded schools.**
- **Associations between adult-reported school-level tobacco prevention practices and policies with students' reported TUPE program exposure were more often observed in TUPE grant-funded schools than in non-grantee schools.**
- **Students in TUPE grant-funded schools were more likely to receive TUPE information in specific content areas, such as why people smoke, the physical harmfulness of smoking, and exposure to cessation classes.**
- **Teachers with a past experience in teaching TUPE lessons and with more hours of TUPE instruction were more likely to have students reporting having**

learned tobacco lessons, about smoking prevalence, and having obtained refusal skills training than teachers without such experience.

- **Teachers who used a published, science-based curriculum were more likely to have students reporting having been taught why people smoke, about smoking prevalence, about the physical harmfulness of smoking and obtaining refusal skills training.**
- **Teacher TUPE training and especially teacher preparedness to teach tobacco prevention lessons were positively associated with students' reported exposure to TUPE-related information.**
- **Use of non-traditional teaching strategies, notably small group discussions and role-playing, were associated with impact on student knowledge of why people smoke, information about the physical harmfulness of smoking and exposure to refusal skills training. Traditional lectures had no impact.**
- **Such barriers to TUPE programs as low district priority or low school priority adversely affected student reports of having received TUPE information.**

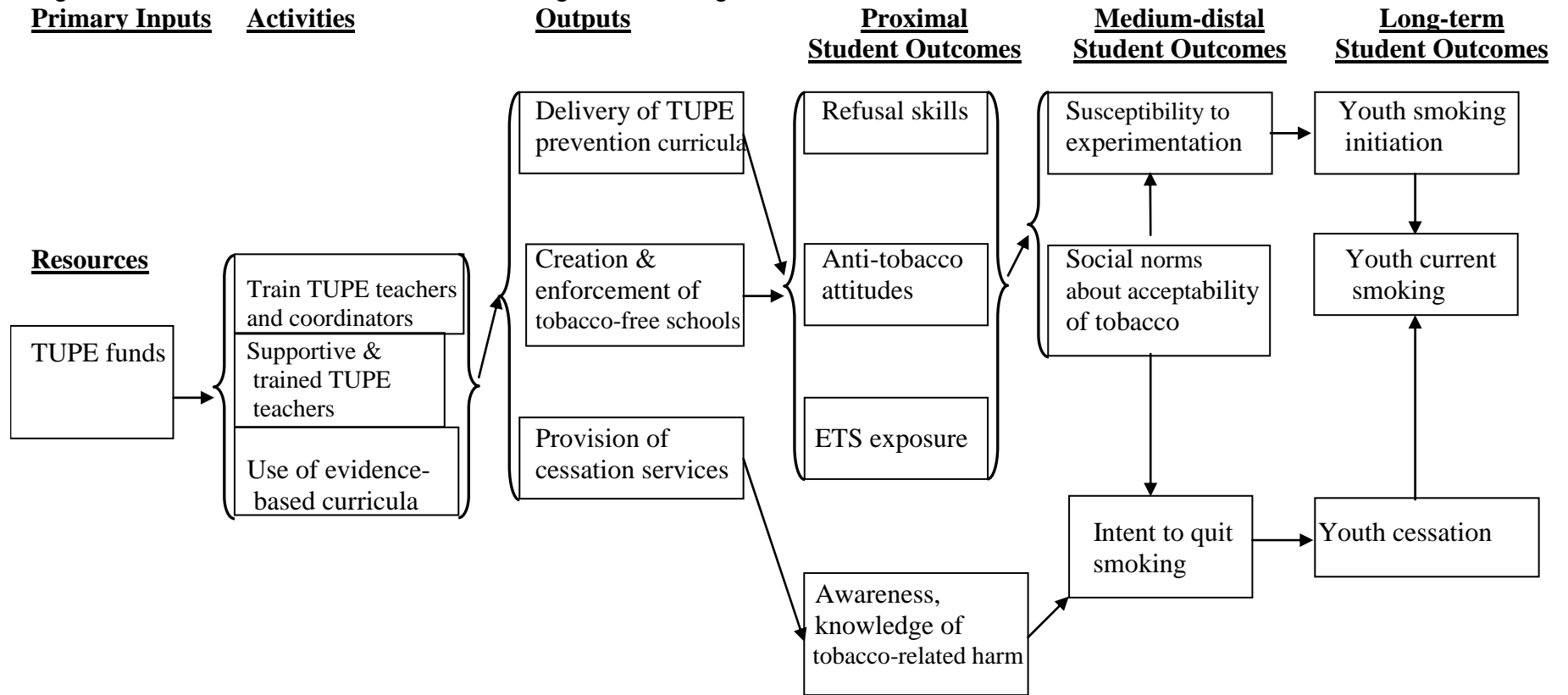
Introduction

Other chapters in this report have described the wide variety of policies and practices implemented in CA schools that are intended to reduce student tobacco use. These practices include enforcement of no-use tobacco policies, delivery of tobacco prevention curricula, sponsorship of school-wide prevention activities, involvement of parents and families in tobacco prevention, and providing support for tobacco use cessation. These services are typically provided to students across all schools in the state, not just to students in schools with TUPE funding. The purpose of this chapter is to examine how these policies and practices were related to students' reported exposure to program services. The investigators also examined differences in program delivery in high schools that received competitive TUPE grants relative to those that did not receive such grants.

The analyses reported here illustrate how well different tobacco policies and practices in schools reached students. The results provide evidence for the potential of these policies to affect student tobacco use outcomes and commonly recognized precursors to use. Examining the impact of these policies and practices on actual student tobacco use is covered in Chapter 8.

For ease of interpretation, the analyses described below examined the numerous outcome measures completed by respondents without attempting first to summarize those that were highly correlated. With so many statistical tests, however, it is likely that some of the “statistically significant” findings reported here were due to chance factors alone. The reader is therefore encouraged to be skeptical of isolated findings and to favor those findings that have been corroborated across multiple, similar measures. This warning applies particularly to coefficients whose nominal p -values are greater than 0.01.

Figure 1. Subset of In-School Evaluation Logic Model diagram.



In Figure 1 this chapter addresses the section of the logic model pertaining to outputs at the school level and proximal outcomes at the student level. Specifically, it address the relationships of tobacco prevention practices and policies observed by teachers, administrators, or TUPE coordinators/health coordinators at the schools with student reports of exposure to the TUPE program, their refusal skills, anti-tobacco attitudes, and knowledge about the consequences of tobacco use.

Analytic Strategy

To examine how school policies and practices are related to student program exposure, the investigators estimated logistic or ordinary least squares regression models depending on whether or not the dependent variable was dichotomous or continuous. These regression models took the following general form:

$$\text{Exposure}_{ij} = \alpha_0 + \beta_1 * \text{Practice}_j + \beta_2 * \text{Grade}_{ij} + \beta_3 * \text{Gender}_{ij} + \beta_4 * \text{Ethnic}_{ij} + \varepsilon_{ij}, \quad [1]^1$$

Where Exposure represents student-reported exposure to specific program services for student i in school j , Practice represents the teacher/school administrator-reported tobacco prevention activity in school j , Grade is a numeric variable indicating a student's grade in school (sixth through 12th), Gender is a dichotomous variable indicating whether the student is male, and Ethnicity is a set of "dummy" dichotomous variables representing student racial/ethnic group membership (American Indian, Asian/Pacific Islander, African American, Latino, Caucasian, and Other). Of particular interest is the coefficient β_1 , which represents the association between a particular tobacco prevention activity and student exposure to program services after controlling for grade, gender, and racial/ethnic composition across schools. This coefficient taps the effectiveness of teacher / administrator-reported tobacco policies and practices in reaching students as reflected in student-reported variation in hypothesized tobacco use precursors.

¹ Equation [1] represents the case for when the dependent variable is continuous. For dichotomous tobacco outcomes (e.g., lifetime use), the investigators estimate:

$$\log(P_{ij}/1-P_{ij}) = \alpha_0 + \beta_1 * \text{Practice}_j + \beta_2 * \text{Grade}_{ij} + \beta_3 * \text{Gender}_{ij} + \beta_4 * \text{Race/Ethnic}_{ij}.$$

The estimation procedures took into account sample weighting, clustering, and stratification. To obtain the standard errors of [1], the dependence among students within schools was adjusted for by using the Huber-White sandwich estimator of variance that relaxes the assumption of independence of observations (Huber, 1967, Kish and Frankel, 1974, White, 1980).²

Measures

Tobacco Use Policies and Practices

The investigators relied on the teacher, school coordinator, and school administrator survey responses to measure tobacco use policies and practices at schools. For the teacher reports, measures were calculated by averaging reports across TUPE-experienced teachers only, within each school. TUPE-experienced teachers were those who reported

² Because schools are the primary sampling units in the 2007-8 IETP and the estimation procedures take into account this complexity, the estimates, standard errors, and degrees of freedom for testing β_1 in [1] are virtually identical to those based on a multilevel model with a random intercept. Specialized multilevel modeling software (e.g., HLM) was not used in this report to estimate the association between school-level TUPE practices and student tobacco use outcomes because commercially available multilevel modeling software currently is unable to handle stratification.

having taught TUPE lessons in the current school year or sometime during the previous school year. For the 25 schools with no TUPE-experienced teacher respondents, the mean responses were reported for all teachers. Table 7.1 lists the tobacco policy and practice measures used in this chapter by source of report. The investigators focused on five broad areas of tobacco use prevention/intervention services: (1) tobacco no-use policies, (2) tobacco-related instruction, (3) school-wide anti-tobacco activities, (4) cessation activities, and (5) institutional support (support from district / school). Appendix Table A7.1 shows the questionnaire items used to assess each measure.

Student Exposure to Program Services

The measures of student exposure to program services are identical to those used and discussed in Chapters 3 and 5. The investigators examine how teacher/administrator-reported tobacco use policies and practices were related to student reports of receiving tobacco-related information, helpfulness of received tobacco information for making decisions about tobacco use, exposure to tobacco lessons, exposure to specific topics about tobacco use, knowledge about school-wide anti-tobacco activities (e.g., guest speakers and assemblies), and knowledge about peer abstinence training and cessation classes at school.

Table 7.1 School-level Tobacco Use Policy and Practice Measures

	Teacher	Coordinator	Administrator
Tobacco Policy			
Enforcement of no-use policy	√	√	
Consequences of violation	√	√	√
Tobacco-related Instruction			
Lessons taught	√	√	
Hours of instruction	√	√	
Infusion of tobacco lessons into other subjects	√		
Published curriculum	√		
Topics covered	√	√	
Mode of delivery	√	√	
Training	√	√	
Barriers to teaching lessons	√	√	√
School-wide Anti-tobacco Activities			
Number of school-wide activities	√	√	√
Cessation Activities			
Presence of cessation services for students	√	√	
Referral of smokers to 800-NO-BUTTS hotline	√	√	√
Parent involvement	√	√	√
Involvement of parents in TUPE activities	√	√	√
Institutional support			
Support from district	√	√	√
School-level and personal support	√	√	√

School Tobacco Policies and Practices to Student Exposure to Program Services

No-Use Tobacco Policy

Enforcement of No-Use Policy

Most teachers and school coordinators reported that they supported school policies prohibiting students from using tobacco on school property a “great deal.” However, the level of enforcement reported by teachers was unrelated to most measures of student exposure to program services.

Consequences for Students Who Violate School No-Use Policy

It is debatable whether suspension, expulsion, or parent conferences are as effective in deterring tobacco use in the long-run as providing prevention and intervention services. To

address this question, the investigators first used teacher, school coordinator, and school administrator reports of what is supposed to happen to students who are caught smoking cigarettes on school premises. The investigators categorized responses as punitive (suspension/expulsion/parent conference) and supportive (referred to special class, referred to tobacco cessation program), and examined the association of punitive and supportive consequences with student exposure to program services. Table 7.2 shows that teacher, coordinator, and administrator reports of supportive consequences were associated with student awareness of cessation classes, and except for administrator reports, were also associated with student awareness of peer abstinence training. Table 7.2 also shows, on the other hand, that coordinator-rated punitive policies were associated with decreased student reports of exposure to topics that tobacco use prevention classes had covered (e.g., why people smoke, smoking prevalence, physical harm and second-hand smoke). In short, supportive policies are associated with improved student exposure to program services (i.e., cessation services); punitive policies are associated with decreased student exposure to information covered in tobacco use prevention classes.

Table 7.2 Relationship of Consequences of Violation of School No-Use Policy to Student Reports of Exposure to Program Services

Student Reports of School's Program Services	<u>Punitive Consequences</u>					
	<u>Teacher</u>		<u>School Coordinator</u>		<u>Administrator</u>	
	<u>OR</u>	<u>p-val</u>	<u>OR</u>	<u>p-val</u>	<u>OR</u>	<u>p-val</u>
Received information about tobacco at school	1.01 [0.90, 1.13]	0.91	0.88 [0.75, 1.04]	0.13	1.01 [0.86, 1.18]	0.95
Tobacco information helpful	1.07 [0.94, 1.22]	0.29	0.87 [0.74, 1.03]	0.12	1.01 [0.82, 1.25]	0.92
Tobacco lessons	1.07 [0.91, 1.25]	0.40	0.81 [0.64, 1.03]	0.09	0.94 [0.77, 1.15]	0.56
Taught about why people smoke	1.06 [0.91, 1.24]	0.42	0.81* [0.66, 0.98]	0.03	0.98 [0.79, 1.22]	0.89
Taught about smoking prevalence	1.07 [0.91, 1.25]	0.42	0.80* [0.66, 0.98]	0.03	0.96 [0.77, 1.20]	0.73
Taught about physical harm from smoking	1.07 [0.92, 1.26]	0.37	0.81* [0.66, 0.99]	0.04	1.00 [0.80, 1.24]	0.99
Taught about secondhand smoke	1.09 [0.93, 1.27]	0.31	0.79* [0.65, 0.97]	0.03	1.02 [0.80, 1.30]	0.85
Refusal skills training	1.11 [0.95, 1.30]	0.20	0.95 [0.81, 1.13]	0.58	1.04 [0.89, 1.21]	0.61
Guest speaker	1.08 [0.95, 1.24]	0.24	0.87 [0.72, 1.05]	0.15	0.96 [0.81, 1.13]	0.62
Assembly about tobacco use	1.01 [0.82, 1.23]	0.96	0.96 [0.77, 1.20]	0.74	0.88 [0.68, 1.13]	0.30
Peer abstinence training	1.04 [0.93, 1.16]	0.51	0.98 [0.83, 1.14]	0.75	0.93 [0.78, 1.10]	0.39
Student-reported Cessation classes	0.92 [0.69, 1.25]	0.61	0.83 [0.53, 1.28]	0.39	0.72 [0.47, 1.09]	0.12

Table 7.2 (continued). Relationship of Consequences of Violation of No-Use Policy to Student Reports of Exposure to Program Services

Student Reports of Exposure to Program Services	Supportive Consequences					
	Teacher		Coordinator		Administrator	
	OR/95% CI	p-val	OR/95% CI	p-val	OR/95% CI	p-val
Received information about tobacco at school	0.98 [0.88, 1.09]	0.69	1.04 [0.90, 1.20]	0.59	0.93 [0.80, 1.06]	0.27
Tobacco information helpful	0.92 [0.79, 1.06]	0.23	0.99 [0.84, 1.17]	0.88	0.90 [0.77, 1.04]	0.16
Tobacco lessons	1.01 [0.89, 1.14]	0.91	1.12 [0.91, 1.37]	0.27	0.95 [0.77, 1.16]	0.60
Taught about why people smoke	0.94 [0.78, 1.15]	0.56	0.99 [0.82, 1.20]	0.92	0.94 [0.78, 1.12]	0.47
Taught about smoking prevalence	0.92 [0.78, 1.08]	0.29	1.08 [0.88, 1.34]	0.45	0.95 [0.78, 1.15]	0.58
Taught about physical harm from smoking	0.95 [0.80, 1.12]	0.53	1.01 [0.82, 1.23]	0.95	0.90 [0.76, 1.08]	0.27
Taught about secondhand smoke	0.92 [0.76, 1.10]	0.35	0.99 [0.80, 1.22]	0.92	0.90 [0.75, 1.08]	0.25
Refusal skills training	1.01 [0.89, 1.13]	0.93	0.99 [0.82, 1.19]	0.90	0.95 [0.79, 1.13]	0.53
Guest speaker	0.99 [0.88, 1.11]	0.87	1.08 [0.91, 1.28]	0.37	0.98 [0.82, 1.16]	0.77
Assembly about tobacco use	1.15 [0.94, 1.42]	0.17	1.18 [0.94, 1.47]	0.15	1.00 [0.80, 1.26]	0.98
Peer abstinence training	1.13* [1.00, 1.28]	0.04	1.20* [1.03, 1.39]	0.02	1.01 [0.89, 1.16]	0.83
Student-reported cessation classes	1.56** [1.23, 1.97]	0.00	2.34** [1.59, 3.44]	0.00	1.53* [1.04, 2.23]	0.03

Notes:

i. 95% CI is 95% confidence interval; OR is odds ratio, reflecting that teacher / coordinator / site administrator reported school TUPE sanction policies to be “supportive” or “punitive,” when students said “yes” to having been exposed to specific TUPE program services.

ii. The investigators categorized responses as punitive (suspension/expulsion/parent conference are teacher / coordinator perceived consequences of violating school smoke-free policy) and supportive (referred to special class, referred to tobacco cessation program are teacher / coordinator perceived consequences of violating school smoke-free policy)

iii. Results come from models that control for student gender, ethnicity, and grade level.

iv. * $0.01 \leq p < 0.05$

** $p < 0.01$

Anti-tobacco Instruction

Tobacco Lessons and Hours of Instruction

The investigators next turned to the relationship between the level of tobacco instruction and student exposure to tobacco-related information. As seen in Tables 7.3, teacher and school coordinator reports of providing tobacco prevention lessons were positively related to student reports of exposure to tobacco-related information. What is also apparent from the results is that tobacco use prevention lessons, as reported by teachers, were positively related to student reports of tobacco lessons and specific tobacco lesson content (e.g., smoking prevalence) but that this was not confirmed by site coordinator reports. These relationships for teachers are presented graphically in Figure 7.1. The 2005-2006 IETP final report had indicated that teachers and coordinators' reported hours spent on TUPE lessons were not related to student reports of exposure to program services. However, Table 7.4 shows that in 2007-2008, teacher reports of hours of instruction were associated with increased student reported exposure to TUPE program services, including tobacco use prevention lessons received at school, information about tobacco use prevalence and training in refusal skills.

Table 7.3 Relationship of Tobacco Use Prevention Instruction Lessons to Student Reports of Exposure to Program Services

Outcome variable	Taught Tobacco Prevention Lessons			
	Teacher		School Coordinator	
	OR/95% CI	p-value	OR/95% CI	p-value
Received information about tobacco at school	1.12 [0.95, 1.32]	0.16	1.19* [1.02, 1.40]	0.03
Tobacco information helpful	1.09 [0.91, 1.30]	0.33	1.17 [0.99, 1.38]	0.06
Tobacco lessons	1.29* [1.02, 1.64]	0.04	1.20 [0.92, 1.54]	0.17
Taught about why people smoke	1.17 [0.96, 1.44]	0.12	1.11 [0.89, 1.39]	0.34
Taught about smoking prevalence	1.26* [1.01, 1.56]	0.04	1.22 [0.97, 1.53]	0.09
Taught about physical harm from smoking	1.17 [0.96, 1.42]	0.12	1.11 [0.88, 1.39]	0.37
Taught about secondhand smoke	1.15 [0.94, 1.40]	0.18	1.09 [0.87, 1.36]	0.45
Refusal skills training	1.25* [1.04, 1.50]	0.02	1.22 [0.99, 1.49]	0.06

Notes:

i. 95% CI is 95% confidence interval; OR is odds ratio, reflecting that teacher / coordinator taught more lessons when students reported "yes" to listed outcome variable

ii. Results come from models that control for student gender, ethnicity, and grade level.

iii. * $0.01 \leq p < 0.05$

** $p < 0.01$

Table 7.4 Relationship of Hours of Tobacco Use Prevention Instruction to Student Reports of Exposure to Services

Outcome variable	Hours of Instruction			
	Teacher		School Coordinator	
	OR/95% CI	p-value	OR/95% CI	p-value
Received information about tobacco at school	1.04 [1.00, 1.09]	0.05	1.02** [1.00, 1.04]	0.00
Tobacco information helpful	1.05* [1.00, 1.11]	< 0.05	1.01* [1.00, 1.03]	0.02
Tobacco lessons	1.08* [1.01, 1.15]	0.02	1.03** [1.01, 1.04]	0.00
Taught about why people smoke	1.08** [1.03, 1.13]	0.00	1.02** [1.00, 1.03]	0.01
Taught about smoking prevalence	1.08** [1.03, 1.13]	0.00	1.03** [1.01, 1.04]	0.00
Taught about physical harm from smoking	1.07* [1.01, 1.13]	0.02	1.02* [1.00, 1.04]	0.02
Taught about secondhand smoke	1.06 [1.00, 1.12]	0.05	1.02* [1.00, 1.04]	0.03
Refusal skills training	1.10** [1.04, 1.16]	0.00	1.03** [1.00, 1.04]	0.00

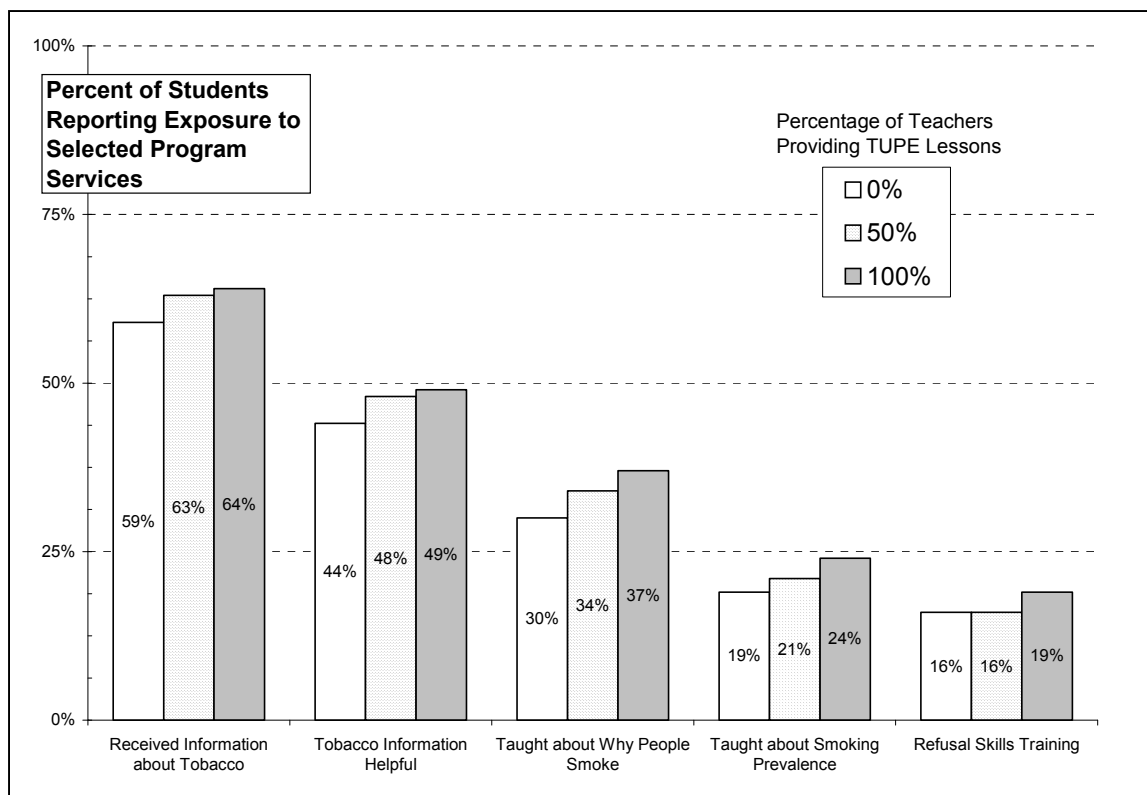
Notes:

i. 95% CI is 95% confidence interval; OR is odds ratio, reflecting that quintiles of hours of instruction as reported by teachers/coordinators were higher when student said “yes” to the specific outcome variable.

ii. Results come from models that control for student gender, ethnicity, and grade level.

iii. * $0.01 \leq p < 0.05$

** $p < 0.01$

Figure 7.1 Tobacco Instruction and Student Exposure to Program Services

Note. The percent of TUPE-experienced teachers in each school teaching each of five topics was calculated and 3 groups were included in the analysis: 0% (no teachers taught TUPE lessons), 50% (half of teachers taught TUPE lessons), and 100% (all teachers taught TUPE lessons).

Infusion of Tobacco Prevention Curriculum in Other Subjects

One might expect that when teachers routinely integrate tobacco-related information into their usual non-health related lessons, students would be more likely to retain tobacco-related knowledge. The investigators did not find any support for this expectation when the investigators examined the relationship between infusion of tobacco use information in their usual curriculum and student exposure to lessons and lesson content (Table 7.5).

However, we did find that infusion was positively related to student reports of refusal skills training ($p = 0.03$).

Table 7.5 Relationship of Tobacco Infusion to Student Reports of Exposure to Services, Based on Teacher's Report

Outcome variable	OR / 95% CI	p-value
Received information about tobacco at school	1.03 [0.85, 1.25]	0.77
Tobacco information helpful	1.02 [0.81, 1.29]	0.83
Tobacco lessons	1.25 [0.93, 1.67]	0.14
Taught about why people smoke	1.15 [0.90, 1.47]	0.25
Taught about smoking prevalence	1.21 [0.91, 1.61]	0.18
Taught about physical harm from smoking	1.12 [0.86, 1.47]	0.38
Taught about secondhand smoke	1.15 [0.87, 1.52]	0.34
Refusal skills training	1.26* [1.03, 1.55]	0.03

Notes:

i. 95% CI is 95% confidence interval; OR is odds ratio, reflecting that teacher reports of infusion of tobacco use prevention message were positively related to student reports of exposure to specific TUPE lessons.

ii. Results come from models that control for student gender, ethnicity, and grade level.

iii. * $0.01 \leq p < 0.05$

** $p < 0.01$

Use of Officially Published and Unofficially Published Tobacco Curricula

On average, use of a consensus, science-based model tobacco curriculum may help ensure that students are exposed to a broader array of tobacco-related topics than use of a nonstandard, locally developed, unofficial curriculum. However, the extent to which breadth versus depth of curriculum content is more effective in reducing student tobacco use is unknown. The results in Table 7.6 suggest that use of an officially published tobacco curriculum is significantly associated with student reports of exposure to lessons and lesson content. Use of officially published TUPE curricula was positively associated with topics concerning why people smoke, smoking prevalence, the physical harm associated with smoking, and refusal skills training. These results are at variance with those reported in previous IETP evaluation reports (2003-2004, 2005-2006) – where use of unofficially

published curricula (teacher reports) was found to have more pronounced effects on student exposure to lessons and lesson content than use of officially published curricula. The California Department of Education has recently been strongly encouraging teachers of TUPE lessons to use a science-based, government-recommended, published (“official”) TUPE curriculum. It may be that CDE’s efforts are now bearing fruit in terms of teachers teaching TUPE lessons with fidelity. Chapter 6 documents the variability of adherence to recommended practices across randomly selected schools that participated in intensive interviews. There were no data collected, however, on the quality of adherence by individual teachers to tobacco use prevention best practices. A science-based, officially published curriculum taught with fidelity appears now to have more impact than use of an unofficially published curriculum.

Table 7.6 Curriculum Used by Teacher and Student Reports of Exposure to Program Services

Outcome variable	Official Published		Unofficial published	
	OR/95% CI	p-value	OR/95% CI	p-value
Received information about tobacco at school	1.19 [0.97, 1.46]	0.09	1.05 [0.88, 1.25]	0.56
Tobacco information helpful	1.20 [0.96, 1.50]	0.11	1.09 [0.89, 1.33]	0.39
Tobacco lessons	1.30 [1.00, 1.70]	0.05	1.17 [0.90, 1.53]	0.25
Taught about why people smoke	1.34* [1.07, 1.69]	0.01	1.12 [0.92, 1.36]	0.27
Taught about smoking prevalence	1.33* [1.04, 1.68]	0.02	1.19 [0.94, 1.49]	0.14
Taught about physical harm from smoking	1.31* [1.04, 1.64]	0.02	1.11 [0.90, 1.38]	0.33
Taught about secondhand smoke	1.19 [0.91, 1.54]	0.20	1.09 [0.87, 1.36]	0.45
Refusal skills training	1.33** [1.10, 1.60]	0.00	1.18 [0.96, 1.45]	0.11

Notes:

i. 95% CI is 95% confidence interval; OR is odds ratio, reflecting teacher reports of whether the TUPE program was officially published or not, or whether it was unofficially published or not. This was related to whether the student said "yes" to having been exposed to specific TUPE lessons

ii. Results come from models that control for student gender, ethnicity, and grade level.

iii. * $0.01 \leq p < 0.05$

** $p < 0.01$

Tobacco Prevention Topics Covered and Mode of Delivery

The teacher and school coordinator surveys asked about the topics covered in tobacco prevention lessons. These topics included such things as the effects of tobacco on health, smoking prevalence, behavioral skills for resisting tobacco offers, and tobacco advertising and marketing. The investigators examined how these topics were associated with student reports of exposure to lessons and lesson content. Both teacher and coordinator reports of tobacco prevention topics were strongly and consistently related to student exposure to tobacco lessons. Teacher and coordinator-reported tobacco topics were consistently related to student perceptions of the usefulness of tobacco-related information and lesson content learned in school as well.

The investigators also examined the relationship between methods of lesson delivery and student exposure to lessons and lesson content. Methods of delivery included traditional lectures, class discussions, and non-traditional methods such as small group activities, student worksheets, and role-playing. As shown in Table 7.7, teacher reported use of small group activities was associated with greater student reports of exposure to the topic on why people smoke and refusal skills training. Teacher reports of use of role play were positively associated with student reports of the topic of physical harm from smoking. For coordinator reports about their own tobacco prevention instructional techniques, in no case was a particular method of instruction found to be significantly associated with student reports of exposure to lessons and lesson content. These results underscore the superiority of teaching strategies that actively engage the students, strategies such as small group activities and student role playing. Conventional teacher lectures appeared to have had no measurable impact on students' recall of TUPE lessons and lesson content.

Table 7.7 Relationship of Tobacco Prevention Instructional Methods to Student Reports of Exposure to Services, Based on Teacher's Report

Student reports of exposure to TUPE services Outcome variable	<u>Classroom Discussion</u>		<u>Small Group Activities</u>		<u>Lecture</u>		<u>Role Play</u>	
	<u>OR/95% CI</u>	<u>p-val</u>	<u>OR/95% CI</u>	<u>p-val</u>	<u>OR/95% CI</u>	<u>p-val</u>	<u>OR</u>	<u>p-val</u>
Received information about tobacco at school	1.08 [0.90, 1.29]	0.41	1.15 [0.86, 1.53]	0.34	1.03 [0.85, 1.23]	0.78	0.98 [0.84, 1.14]	0.78
Tobacco information helpful	1.05 [0.89, 1.24]	0.56	1.12 [0.87, 1.43]	0.36	1.01 [0.84, 1.22]	0.91	1.02 [0.84, 1.23]	0.83
Tobacco lessons	1.02 [0.77, 1.35]	0.90	1.38 [0.87, 2.19]	0.17	1.05 [0.86, 1.29]	0.62	0.99 [0.80, 1.23]	0.93
Taught about why people Smoke	0.98 [0.79, 1.21]	0.82	1.45* [1.01, 2.08]	< 0.05	1.04 [0.84, 1.28]	0.74	1.15 [0.93, 1.41]	0.20
Taught about smoking prevalence	1.01 [0.80, 1.28]	0.94	1.14 [0.84, 1.56]	0.40	1.02 [0.83, 1.26]	0.84	1.11 [0.88, 1.40]	0.37
Taught about physical harm from smoking	1.04 [0.84, 1.28]	0.73	1.43 [0.93, 2.19]	0.10	1.12 [0.89, 1.40]	0.33	1.33** [1.10, 1.60]	0.00
Taught about SHS	0.99 [0.80, 1.22]	0.89	1.45 [0.93, 2.25]	0.10	1.08 [0.86, 1.37]	0.49	1.18 [0.92, 1.51]	0.18
Refusal skills training	0.94 [0.72, 1.22]	0.63	1.69** [1.27, 2.25]	0.00	0.96 [0.78, 1.18]	0.70	1.03 [0.78, 1.36]	0.85

Notes:

i. 95% CI is 95% confidence interval; OR is odds ratio, reflecting that student reports of exposure to specific TUPE services increased with increasing use of selected classroom instructional strategies as reported by teachers

. Results come from models that control for student gender, ethnicity, and grade level.

iii. * 0.01 ≤ p < 0.05

** p < 0.01

Tobacco-related Instructional Training and Preparedness

The investigators used two indicators of teacher/coordinator training in tobacco education to examine how training is related to student exposure to tobacco-related information, lessons, and lesson content: the receipt of in-service training on tobacco prevention education and the level of preparedness for teaching tobacco prevention lessons. The results presented in Table 7.8 show that variations in teacher and coordinator TUPE training are reflected in student reports of exposure to tobacco lessons and lesson content. Teachers' reports of exposure to TUPE training were positively related to students' reports of the topic of smoking prevalence. Teacher preparedness was found to be positively associated with students' reports of having received information about tobacco at school, the perceived usefulness of tobacco information, and tobacco use prevention education (TUPE) class content. Coordinator preparedness, but not teacher preparedness, was positively associated with student-reported exposure to refusal skills training.

Table 7.8 Relationship of Tobacco Prevention Training and Feeling Prepared to Teach TUPE Lessons with Student Reports of Exposure to TUPE-related Information

Outcome variable	Training				Level of Perceived Preparedness			
	Teacher		School Coordinator		Teacher		School Coordinator	
	OR/ 95% CI	p-val	OR/ 95% CI	p-val	OR/ 95% CI	p-val	OR/ 95% CI	p-val
Received information about tobacco at school	1.21 [0.86, 1.70]	0.28	0.92 [0.77, 1.09]	0.33	1.22* [1.02, 1.45]	0.03	1.09 [0.93, 1.27]	0.28
Tobacco information helpful	1.34 [0.94, 1.91]	0.11	0.93 [0.77, 1.13]	0.48	1.22* [1.01, 1.47]	0.04	1.06 [0.91, 1.25]	0.44
Tobacco lessons	1.31 [0.81, 2.12]	0.27	0.92 [0.73, 1.17]	0.50	1.24 [0.93, 1.64]	0.14	1.19 [0.94, 1.52]	0.14
Taught about why people smoke	1.28 [0.95, 1.74]	0.11	0.93 [0.74, 1.16]	0.49	1.39** [1.11, 1.73]	0.00	1.14 [0.90, 1.46]	0.27
Taught about smoking prevalence	1.36* [1.03, 1.79]	0.03	0.89 [0.70, 1.13]	0.34	1.27 [1.00, 1.61]	0.05	1.21 [0.96, 1.52]	0.11
Taught about physical harm from smoking	1.20 [0.85, 1.69]	0.31	0.91 [0.74, 1.14]	0.42	1.38** [1.11, 1.71]	< 0.01	1.03 [0.81, 1.30]	0.80
Taught about SHS	1.07 [0.73, 1.58]	0.71	0.88 [0.70, 1.09]	0.23	1.18 [0.92, 1.52]	0.18	1.03 [0.82, 1.29]	0.81
Refusal skills training	1.51 [0.99, 2.29]	0.06	0.95 [0.79, 1.14]	0.59	1.26 [0.97, 1.64]	0.09	1.29* [1.06, 1.58]	0.01

Notes:

- i. 95% CI is 95% confidence interval; OR is odds ratio, reflecting the odds of students saying “yes” to having been exposed to specific TUPE lessons in response to teachers’ and coordinators’ reported level of TUPE training.
- ii. 95% CI is 95% confidence interval; OR is odds ratio, reflecting the odds of students saying “yes” to having been exposed to specific TUPE lessons in response to teachers’ and coordinators’ reported level of feeling prepared to teach TUPE lessons. Feel prepared to teach TUPE lessons was determined by the answer to the question: “Overall, to what extent do you feel that you are prepared to teach tobacco use prevention lessons?”
- iii. Results come from models that control for student gender, ethnicity, and grade level.
- iv. * $0.01 \leq p < 0.05$
- ** $p < 0.01$

Barriers to Teaching Tobacco Lessons

Teachers, school coordinators, and school administrators were asked to indicate what they perceived to be the barriers to teaching tobacco prevention lessons in their school. The investigators examined the relationship of perceived barriers to three student outcome variables: 1) the receipt of tobacco use-related information at school, 2) the usefulness of this information, and 3) whether or not the student was exposed to tobacco use prevention lessons. Table 7.9 shows how perceived barriers were related to each of these student program outcomes. In general, the results indicated that greater barriers to teaching tobacco prevention were associated with reduced student exposure to tobacco information and tobacco lessons, although the results varied considerably depending on the type of barrier, the person reporting (teacher vs. coordinator vs. administrator), and the outcome assessed. Students were less likely to report that they received tobacco-related information in schools where teachers reported that their school had not made tobacco use prevention a high priority (OR = 0.74; 95% CI [0.57, 0.98]).

Coordinator-reported barriers were more consistently related to student program outcomes than teacher reported barriers. Students in schools in which the administrator stated that tobacco prevention was not mandated (OR = 0.69; 95% CI [0.54, 0.88]), a low priority for the district (OR = 0.79; 95% CI [0.67, 0.93]) and a low priority for the school (OR = 0.81; 95% CI [0.68, 0.97]) reported less information received and lower perceived usefulness of TUPE information received than students in other schools. Coordinator reported barriers (not mandated (OR = 0.52; 95% CI [0.34, 0.79]), lack of materials (OR = 0.72; 95% CI [0.55, 0.94]), and a low priority for district (OR = 0.72; 95% CI [0.57, 0.92])) were found to be negatively associated with student reports of exposure to tobacco prevention lessons. Similar patterns were found for site administrators' and coordinators' reported barriers and student reports of exposure to TUPE services. In sum, the evidence is generally consistent that barriers to implementing TUPE services at the school, particularly barriers identified by coordinators and site administrators, were associated with reduced likelihood that students reported receiving tobacco use prevention information, exposure to tobacco prevention lessons and that the TUPE information they did receive was helpful. One

notable exception to perceived barriers having an impact on student receipt of TUPE program services was the barrier: lack of funding, which was unrelated to student reports of receipt of TUPE program services.

Table 7.9 Relationship of Barriers to Teaching Prevention Lessons to Student Reports of Exposure to Services

	Outcome variable: Student reported that they received information					
	Teacher		Coordinator		Administrator	
	OR/ 95% CI	p-val	OR/ 95% CI	p-val	OR/ 95% CI	p-val
Barriers						
Not part of curriculum	0.98 [0.83, 1.16]	0.81	1.01 [0.66, 1.55]	0.95	0.82 [0.66, 1.01]	0.06
Not mandated	1.00 [0.81, 1.25]	0.97	0.69** [0.54, 0.88]	0.00	0.74** [0.61, 0.91]	0.00
Outcomes not assessed	1.11 [0.94, 1.31]	0.23	0.89 [0.73, 1.08]	0.23	1.07 [0.90, 1.27]	0.46
Not interested	— —	—	— —	—	0.93 [0.80, 1.08]	0.33
Lack of materials	0.90 [0.75, 1.09]	0.27	0.84 [0.70, 1.01]	0.07	0.92 [0.77, 1.11]	0.39
Lack of time	1.04 [0.87, 1.24]	0.71	1.00 [0.86, 1.16]	0.98	0.89 [0.78, 1.03]	0.11
Lack of funding	0.84 [0.55, 1.29]	0.43	1.10 [0.84, 1.43]	0.49	0.89 [0.76, 1.05]	0.18
Low district priority	0.88 [0.74, 1.04]	0.14	0.79** [0.67, 0.93]	< 0.01	0.82** [0.71, 0.94]	< 0.01
Low school priority	0.74* [0.57, 0.98]	0.03	0.81* [0.68, 0.97]	0.02	0.96 [0.73, 1.27]	0.80
Lack of training	0.97 [0.78, 1.20]	0.76	0.90 [0.72, 1.13]	0.36	0.92 [0.77, 1.09]	0.31
All barriers	0.98 [0.94, 1.02]	0.33	0.95** [0.91, 0.98]	< 0.01	0.97* [0.94, 1.00]	0.03

	Outcome variable: Student reported that information received was helpful					
	Teacher		Coordinator		Administrator	
	OR/ 95% CI	p-val	OR/ 95% CI	p-val	OR/ 95% CI	p-val
Barriers						
Not part of curriculum	1.01 [0.82, 1.25]	0.91	1.04 [0.68, 1.62]	0.84	0.86 [0.68, 1.08]	0.19
Not mandated	1.06 [0.87, 1.29]	0.56	0.75* [0.58, 0.96]	0.02	0.78 [0.61, 1.01]	0.06
Outcomes not assessed	1.07 [0.90, 1.28]	0.43	0.94 [0.78, 1.13]	0.49	1.09 [0.92, 1.30]	0.31
Not interested	— —	—	— —	—	0.93 [0.80, 1.07]	0.31
Lack of materials	0.89 [0.72, 1.11]	0.29	0.86 [0.73, 1.02]	0.08	0.89 [0.73, 1.08]	0.23
Lack of time	1.00 [0.83, 1.21]	0.97	1.01 [0.85, 1.20]	0.91	0.90 [0.77, 1.05]	0.17
Lack of funding	0.93 [0.63, 1.38]	0.71	1.12 [0.86, 1.46]	0.38	0.92 [0.77, 1.10]	0.35
Low district priority	0.92 [0.75, 1.13]	0.40	0.82* [0.71, 0.95]	0.01	0.82** [0.70, 0.95]	< 0.01
Low school priority	0.81 [0.60, 1.08]	0.15	0.73** [0.58, 0.92]	< 0.01	0.99 [0.73, 1.34]	0.93
Lack of training	0.98 [0.74, 1.30]	0.90	0.89 [0.74, 1.07]	0.21	0.95 [0.82, 1.11]	0.54
All barriers	0.98 [0.94, 1.02]	0.42	0.95* [0.92, 0.99]	0.01	0.97 [0.93, 1.01]	0.09

Outcome variable: Student reported exposure to tobacco prevention lessons

	<u>Teacher</u>		<u>Coordinator</u>		<u>Administrator</u>	
	OR/ 95% CI	p-value	OR/ 95% CI	p-value	OR/ 95% CI	p-value
Barriers						
Not part of curriculum	1.07 [0.83, 1.38]	0.59	1.07 [0.59, 1.92]	0.83	0.64** [0.49, 0.84]	0.00
Not mandated	1.07 [0.77, 1.49]	0.68	0.52** [0.34, 0.79]	0.00	0.67** [0.51, 0.89]	< 0.01
Outcomes not assessed	1.16 [0.89, 1.50]	0.27	0.79 [0.60, 1.04]	0.09	1.03 [0.79, 1.33]	0.84
Not interested	— —	—	— —	—	0.87 [0.70, 1.08]	0.21
Lack of materials	0.95 [0.71, 1.25]	0.70	0.72* [0.55, 0.94]	0.02	0.79 [0.61, 1.01]	0.06
Lack of time	1.12 [0.86, 1.44]	0.40	0.91 [0.73, 1.13]	0.38	0.82 [0.67, 1.00]	0.05
Lack of funding	0.94 [0.48, 1.84]	0.87	1.04 [0.75, 1.43]	0.83	0.84 [0.63, 1.11]	0.22
Low district priority	0.75 [0.55, 1.01]	0.06	0.72** [0.57, 0.92]	< 0.01	0.71** [0.58, 0.87]	0.00
Low school priority	0.67 [0.45, 1.01]	0.06	0.74 [0.54, 1.02]	0.06	0.92 [0.58, 1.44]	0.71
Lack of training	0.98 [0.72, 1.34]	0.89	0.96 [0.65, 1.42]	0.83	0.86 [0.68, 1.08]	0.18
All barriers	0.99 [0.93, 1.05]	0.77	0.92** [0.87, 0.97]	0.00	0.94* [0.90, 0.99]	0.02

Notes:

i. 95% CI is 95% confidence interval; OR is odds ratio reflecting that student reported exposure to tobacco use prevention lessons is low when teachers, coordinators or administrators checked "yes" that specific barriers to implementing TUPE existed at their school

ii. Results come from models that control for student gender, ethnicity, and grade level.

iii. * 0.01 ≤ p < 0.05

** p < 0.01

School-wide Anti-tobacco Activities

Number of School-Wide Activities

Teachers, coordinators, and administrators were asked about nine school-wide, tobacco prevention activities (e.g., Great American Smoke-out, anti-tobacco club, etc.) that took place at their school during the school year prior to the survey. Table 7.10 shows how the total count of these activities was related to students' receipt of tobacco-related information, perceived usefulness of this information, and cessation classes. The results were less consistent in 2007-2008 than they had been in 2005-2006. In 2005-2006 students had reported higher levels of receipt of tobacco-related information and higher usefulness of this information when they attended schools that sponsored greater numbers of school-wide tobacco education activities. In 2007-2008 this was no longer the case. The number of school-wide tobacco-related activities did show a consistently positive association with student reported cessation classes, however.

Table 7.10 Relationship of School Activities to Student Reports of Exposure to TUPE-related Information and Services

	<u>Received Information</u>		<u>Outcome variable</u> <u>Information helpful</u>		<u>Cessation Classes</u>	
	<u>OR/95% CI</u>	<u>p-value</u>	<u>OR/95% CI</u>	<u>p-value</u>	<u>OR/95% CI</u>	<u>p-value</u>
<u>Total count of nine possible school wide activities</u>						
Teacher	1.04 [0.98, 1.10]	0.18	1.02 [0.94, 1.09]	0.68	1.22** [1.07, 1.38]	0.00
School coordinator	1.00 [0.98, 1.03]	0.79	1.00 [0.96, 1.03]	0.82	1.12** [1.04, 1.21]	0.00
School administrator	1.03 [1.00, 1.06]	0.08	1.03 [0.99, 1.06]	0.15	1.11* [1.02, 1.20]	0.02

Notes:

i. 95% CI is 95% confidence interval; OR is odds ratio, reflecting higher likelihood of students reporting awareness of on-campus cessation classes, having received information and having found TUPE information helpful for higher teacher-reported, coordinator-reported, and administrator-reported levels of school-wide TUPE activities

ii. Results come from models that control for student gender, ethnicity, and grade level.

iii. * $0.01 \leq p < 0.05$

** $p < 0.01$

Cessation Activities***Cessation Activities***

As expected, teacher, coordinator, and administrator reports of the presence of special programs for students who wanted help quitting their smoking habit were positively related to student reports of the presence of peer abstinence training and cessation classes. These relationships are shown in Table 7.11 and Figure 7.2.

Table 7.11 Relationship of Cessation Activities to Student Awareness of Cessation Services

	Outcome variable			
	Peer Abstinence Training		Cessation Classes	
	OR/95% CI	p-value	OR/95% CI	p-value
Cessation Program				
Teacher	1.37** [1.10, 1.69]	< 0.01	2.51** [1.59, 3.96]	0.00
School coordinator	3.46** [1.98, 6.05]	0.00	1.11 [0.95, 1.28]	0.18
School administrator	1.33** [1.10, 1.61]	0.00	2.04** [1.30, 3.21]	0.00

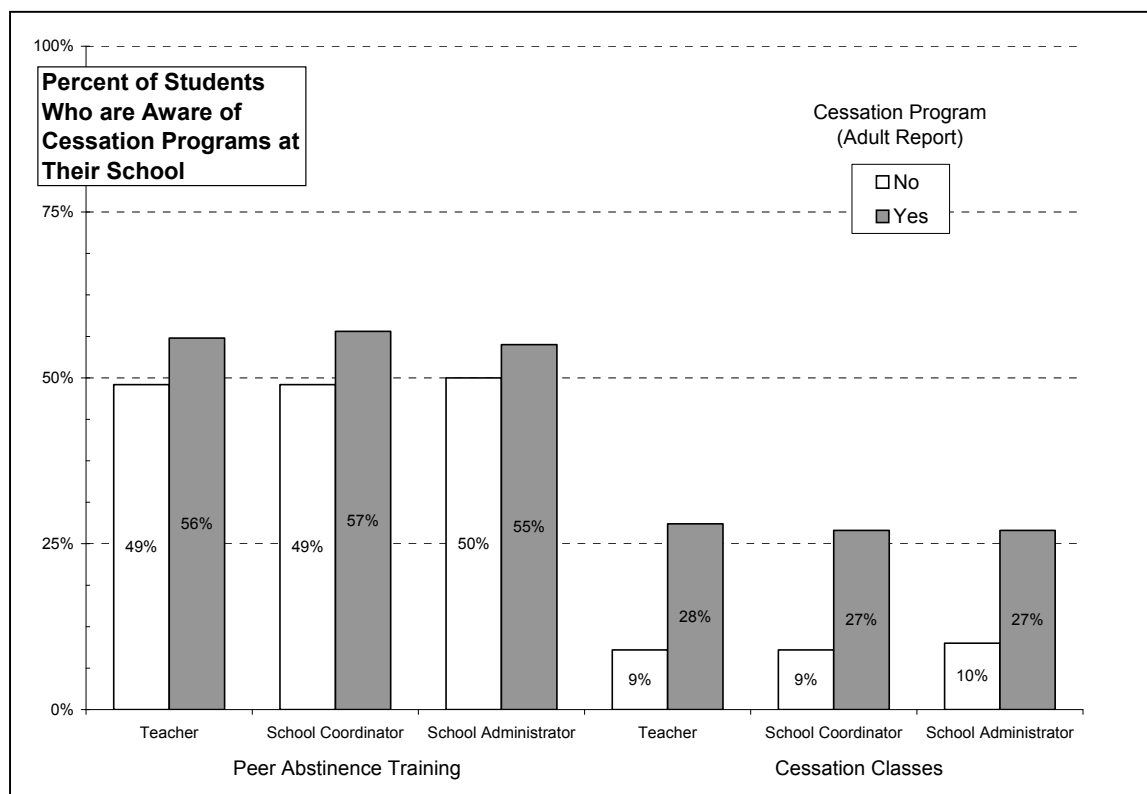
Notes:

i. 95% CI is 95% confidence interval; OR is odds ratio, reflecting that when teachers, coordinators, or administrators reported the presence of cessation activities at their school, the students were more likely to report being aware of peer abstinence training and cessation classes sponsored by their school.

ii. Results come from models that control for student gender, ethnicity, and grade level.

iii. * $0.01 \leq p < 0.05$

** $p < 0.01$

Figure 7.2 Student Awareness of Cessation Services by Teacher, Coordinator, and Administrator reports of Cessation Program

Institutional support

Tobacco Prevention/Intervention Resources and Support from the School District

The first two panels in Table 7.12 show how perceived changes in prevention/intervention resources and support from the school district were related to students' receipt of tobacco-related information and their satisfaction with the perceived usefulness of this information in making decisions about tobacco use. Table 7.12 also shows how district support for tobacco prevention was related to student receipt of tobacco-related information and to the perceived usefulness of that information.

Teacher, but not coordinator reports, demonstrated that when district administrators were perceived to offer strong support for tobacco use prevention lessons, students more frequently reported that they received tobacco-related information at school (OR = 1.28; 95% CI [1.07, 1.53]) and reported that the TUPE information received was helpful (OR = 1.23, 95% CI [1.04, 1.48]. Coordinator but not teacher reports indicated that when

district administrators were perceived to offer strong support for the TUPE program that students were more likely to report that the tobacco-related information they had received was helpful ([OR= 1.24, 95% CI [1.04, 1.48]). Teacher reported district support of TUPE programs was also positively associated with student reports of receiving tobacco-related information at school. This suggests that TUPE information has more impact and is deemed more useful when district administrators make clear to teachers, and school TUPE coordinators that they support tobacco use prevention lessons, specifically, and the TUPE program in general “a great deal.”

Table 7.12 also shows that teacher perceptions of the priority of the tobacco use prevention education program at the school were positively related to student reports of receiving tobacco-related information (OR = 1.12, 95% CI [1.02, 1.22]). Teachers' and administrators' personal opinions about the value of tobacco prevention education for students were not significantly related to student reports of receiving TUPE information. In sum, when teachers perceive there to be strong support by the district for the school's TUPE program, students are more likely to report having found the TUPE information to be helpful. Students' reports of exposure to TUPE information and ratings of the helpfulness of the TUPE information were positively related to site administrator perceptions of district support for TUPE.

Table 7.12 Relationship of School Activities, Tobacco Prevention/Intervention Resources, and Support from District to Student Reports of Exposure to Services

	<u>Outcome variable</u>			
	<u>Received Information</u>		<u>Information helpful</u>	
	<u>OR/95% CI</u>	<u>p-value</u>	<u>OR/95% CI</u>	<u>p-value</u>
<u>Increases in TUPE Resources</u>				
Teacher	1.20 [0.91, 1.59]	0.20	1.20 [0.87, 1.66]	0.26
Site coordinator	1.07 [0.87, 1.32]	0.49	1.06 [0.88, 1.28]	0.53
<u>Decreases in TUPE Resources</u>				
Teacher	1.10 [0.90, 1.33]	0.36	1.10 [0.90, 1.33]	0.34
Site coordinator	0.92 [0.76, 1.11]	0.37	0.96 [0.80, 1.15]	0.65
<u>Support from district</u>				
Teacher				
District expects teachers to offer TUPE lessons	1.28** [1.07, 1.53]	< 0.01	1.23* [1.02, 1.48]	0.03
District supports TUPE program	1.27* [1.04, 1.55]	0.02	1.23 [0.87, 1.76]	0.24
Site coordinator				
District expects teachers to offer TUPE lessons	1.14 [0.97, 1.34]	0.12	1.16 [0.99, 1.35]	0.06
District supports TUPE program	1.15 [0.97, 1.38]	0.12	1.24* [1.04, 1.48]	0.02
Site administrator				
District supports TUPE program	1.10 [0.93, 1.30]	0.27	1.05 [0.87, 1.27]	0.62
<u>Priority of Tobacco Education at School</u>				
Teacher	1.12* [1.02, 1.22]	0.02	1.10 [0.97, 1.24]	0.12
<u>Tobacco education is a valuable use of student time</u>				
Site administrator	1.05 [0.90, 1.24]	0.53	1.01 [0.85, 1.20]	0.93

Notes:

i. 95% CI is 95% confidence interval; OR is odds ratio, reflecting that students are more likely to remember getting TUPE information and more likely to find the TUPE information helpful when teachers and site administrators report that the district strongly supports TUPE program and is investing resources in TUPE

ii. Results come from models that control for student gender, ethnicity, and grade level.

iii. * $0.01 \leq p < 0.05$

** $p < 0.01$

School Tobacco Policies and Practices and Student Exposure to Program Services: Differences across High Schools with Competitive TUPE Grants

The investigators next briefly present results stratified by TUPE funding status, to examine the relationships of policies and practices to student exposure to program services for TUPE-funded and non-TUPE funded schools, separately. The investigators did not examine grantee/non-grantee differences directly but only implicitly, by replicating the foregoing analyses, now nested within these two types of schools. To the extent that odds ratios / regression coefficients for TUPE-funded schools did not fall in the 95 percent confidence intervals of the corresponding estimates for non-TUPE-funded schools, then it seemed appropriate to conclude that there were significant differences in TUPE-funded and non-TUPE-funded schools. Overall, only a few significant differences were found across grantee and non-grantee schools, which are described below.

School No-Use Tobacco Policy

Consequences for Students who Violate School No-Use Policy

Some significant associations were found between schools that employed suspension/expulsion policies for violation of the school no-smoking rule and student reports of exposure to TUPE content across TUPE-funded and non-TUPE-funded schools (Table 17.13). At non-grantee schools, administrator reports of suspension/expulsion policies were negatively associated with student reports of exposure to tobacco lessons and topics on why people smoke, and smoking prevalence, perhaps suggesting that schools without the TUPE funding needed to provide teacher training resort to punishment instead of supportive education as the principal strategy for motivating students to adhere to their school's no tobacco use policy.

Table 7.13 Consequences of Violation of School No-Use Policy and Student Reports of Exposure to Program Services in grantee and non-grantee High Schools

Outcome variable	Suspensions/Expulsion (Administrator)			
	Non-grantee		Grantee	
	OR/95% CI	p-value	OR/95% CI	p-value
Received information about tobacco at school	0.85 [0.68, 1.05]	0.12	1.20 [0.90, 1.59]	0.21
Tobacco information helpful	0.91 [0.73, 1.14]	0.42	1.13 [0.80, 1.59]	0.47
Tobacco lessons	0.76* [0.59, 0.98]	0.03	1.09 [0.70, 1.69]	0.70
Taught about why people smoke	0.81* [0.67, 0.98]	0.03	1.18 [0.74, 1.86]	0.48
Taught about smoking prevalence	0.74* [0.58, 0.95]	0.02	1.03 [0.66, 1.62]	0.88
Taught about physical harm from smoking	0.85 [0.67, 1.07]	0.17	1.18 [0.75, 1.84]	0.47
Taught about SHS	0.91 [0.72, 1.14]	0.41	1.25 [0.80, 1.96]	0.31
Refusal skills training	1.13 [0.88, 1.45]	0.34	0.94 [0.73, 1.20]	0.61

Notes:

i. 95% CI is 95% confidence interval; OR is odds ratio, reflecting the odds of students saying “yes” to having been exposed to specific TUPE lessons in response to administrators’ reports of use of punitive versus supportive strategies for enforcing adherence to school no-smoking policies

ii. Results come from models that control for student gender, ethnicity, and grade level.

iii. * $0.01 \leq p < 0.05$

** $p < 0.01$

Tobacco Use Prevention Instruction

Tobacco Lessons, Hours of Instruction, and Infusion of Tobacco Lessons

The investigators found some limited evidence that teacher reports of total hours of instruction of tobacco use prevention lessons were positively associated with student reports of having received specific types of tobacco use prevention instruction. Table 17.14 shows that, in non-grantee schools, quintiles of hours of instruction were unrelated to most student reports of exposure to tobacco use prevention instruction, although quintiles of hours of instruction were positively associated with student reports of having received instruction about peer smoking prevalence and about why people smoke. Table 17.14 shows that in TUPE grantee schools, quintiles of hours of instruction were positively associated with student reports of TUPE content about why people smoke, about the physical harm associated with smoking, and about the harmfulness of second hand smoke. Overall, these results suggest that students were more likely to report having been taught specific tobacco control topics if their teachers reported more hours of tobacco use prevention lessons.

Table 7.14 Hours of Instruction and Student Reports of Exposure to Program Services in grantee and non-grantee High Schools

Outcome variable	Hours of Instruction (Teacher)			
	Non-grantee		Grantee	
	OR/95% CI	p-value	OR/95% CI	p-value
Received information about tobacco at school	1.02 [0.98, 1.07]	0.37	1.07 [0.97, 1.18]	0.17
Tobacco information helpful	1.02 [0.97, 1.06]	0.49	1.08 [0.97, 1.21]	0.15
Tobacco lessons	1.06 [0.99, 1.14]	0.11	1.09 [0.94, 1.25]	0.26
Taught about why people smoke	1.06* [1.01, 1.11]	0.03	1.11* [1.00, 1.23]	0.04
Taught about smoking prevalence	1.07* [1.01, 1.12]	0.01	1.12 [0.99, 1.26]	0.08
Taught about physical harm from smoking	1.02 [0.96, 1.08]	0.47	1.15* [1.02, 1.29]	0.02
Taught about SHS	1.02 [0.96, 1.09]	0.53	1.14* [1.02, 1.27]	0.02
Refusal skills training	1.06 [0.97, 1.16]	0.18	1.04 [0.96, 1.13]	0.30

Notes:

i. 95% CI is 95% confidence interval; OR is odds ratio, reflecting the odds of students saying “yes” to having been exposed to specific TUPE lessons in response to quintiles of teachers’ hours of instruction, listed separately for TUPE grantees and TUPE non-grantees.

ii. Results come from models that control for student gender, ethnicity, and grade level.

iii. * $0.01 \leq p < 0.05$

** $p < 0.01$

Tobacco Use Prevention Topics Covered and Mode of Delivery

The investigators found that one of the tobacco use prevention topics covered in lessons – “Behavior skills for resisting tobacco offers” and two of the instructional strategies – “Small Group Discussion” and “Role Play” were positively associated with student reports of exposure to TUPE content in grantee schools but not in non-grantee schools. Table 7.15 shows for TUPE grantee schools only that teacher reports of having covered the topic of “Behavior skills for resisting tobacco offers” as one of the topics in their TUPE lessons last year was associated with increased likelihood of student reports of receiving information about tobacco at school, helpfulness of the information, TUPE content about reasons why people smoke, smoking prevalence, and physical harm from smoking. These associations were not significant in non-grantee schools. Table 7.16 shows that teachers’ reports of having covered the topic of “Small Group Discussion” were positively associated with student reports of receiving information about reasons why people smoke and refusal skills training in non-grantee schools, and student

reports of receiving information about physical harm from smoking and second hand smoke in grantee schools. Teachers' reported use of "Role Play" was associated with student reports of receiving information about reasons why people smoke, physical harm from smoking and second hand smoke in non-grantee schools, and information about smoking prevalence, physical harm from smoking, second hand smoke, and refusal skills training in grantee schools. Use of role play as a teaching strategy, in short, seems to be effective no matter what the TUPE funding status of the school.

Table 7.15 Teacher Reports of Teaching Refusal Skills and Student Reports of Exposure to Program Services in grantee and non-grantee High Schools

Outcome variable	Behavior Skills for Resisting Tobacco Offers			
	Non-grantee		Grantee	
	OR/95% CI	p-value	OR/95% CI	p-value
Received information about tobacco at school	1.01 [0.80, 1.28]	0.91	1.39* [1.03, 1.88]	0.03
Tobacco information helpful	1.01 [0.79, 1.31]	0.91	1.47* [1.02, 2.11]	0.04
Tobacco lessons	1.17 [0.79, 1.74]	0.44	1.30 [0.86, 1.98]	0.21
Taught about why people smoke	1.14 [0.92, 1.41]	0.24	1.57* [1.05, 2.33]	0.03
Taught about smoking prevalence	1.36 [1.00, 1.84]	0.05	1.51* [1.03, 2.23]	0.04
Taught about physical harm from smoking	1.10 [0.81, 1.48]	0.53	1.69* [1.13, 2.53]	0.01
Taught about SHS	1.08 [0.73, 1.59]	0.70	1.55 [0.97, 2.46]	0.07
Refusal skills training	0.91 [0.51, 1.63]	0.74	1.28 [1.00, 1.64]	0.05

Notes:

i. 95% CI is 95% confidence interval; OR is odds ratio, reflecting the odds of students saying "yes" to having been exposed to specific TUPE lessons in response to teachers' reports of having covered refusal skills training as one of the topics in their TUPE lessons.

ii. Results come from models that control for student gender, ethnicity, and grade level.

iii. * $0.01 \leq p < 0.05$

** $p < 0.01$

Table 7.16 Teacher Reports of Instructional Strategy and Student Reports of Exposure to Program Services in grantee and non-grantee High Schools

Outcome variable	Small Group Discussion				Role Play			
	Non-grantee		Grantee		Non-grantee		Grantee	
	OR/ 95% CI	p-value	OR/ 95% CI	p-value	OR/ 95% CI	p-value	OR/ 95% CI	p-value
Received information about tobacco at school	0.96 [0.85, 1.09]	0.52	1.66 [0.96, 2.87]	0.07	1.06 [0.93, 1.19]	0.38	1.25 [0.70, 2.22]	0.44
Tobacco information helpful	0.98 [0.86, 1.11]	0.75	1.46 [0.91, 2.35]	0.12	1.03 [0.91, 1.16]	0.63	1.93 [0.96, 3.88]	0.06
Tobacco lessons	1.12 [0.87, 1.43]	0.38	2.43 [0.91, 6.50]	0.08	1.19 [0.98, 1.44]	0.08	1.55 [0.70, 3.46]	0.28
Taught about why people smoke	1.20* [1.04, 1.39]	0.01	2.58 [0.93, 7.16]	0.07	1.23** [1.06, 1.43]	< 0.01	1.85 [0.67, 5.11]	0.23
Taught about smoking prevalence	0.91 [0.75, 1.11]	0.35	1.77 [0.82, 3.82]	0.15	1.14 [0.95, 1.37]	0.15	2.89** [1.79, 4.66]	0.00
Taught about physical harm from smoking	1.06 [0.90, 1.24]	0.50	2.76* [1.04, 7.31]	0.04	1.43** [1.27, 1.61]	0.00	2.33* [1.15, 4.73]	0.02
Taught about SHS	0.95 [0.80, 1.12]	0.54	2.97* [1.12, 7.93]	0.03	1.33** [1.16, 1.53]	0.00	2.03* [1.13, 3.64]	0.02
Refusal skills training	1.82** [1.45, 2.28]	0.00	1.40 [0.93, 2.10]	0.11	0.95 [0.80, 1.13]	0.56	1.47** [1.11, 1.95]	< 0.01

Notes:

i. 95% CI is 95% confidence interval; OR is odds ratio, reflecting the odds of students saying “yes” to having been exposed to specific TUPE lessons in response to teachers’ reports of having used small group discussions or role playing as instructional strategies in their TUPE lessons.

ii. Results come from models that control for student gender, ethnicity, and grade level.

iii. * 0.01 ≤ p < 0.05

** p < 0.01

Tobacco Prevention Instructional Training and Preparedness

The investigators found that for school teachers, tobacco use prevention training was differentially associated with students' reports of exposure to tobacco lessons and lesson content in grantee and non-grantee schools. As shown in Table 7.17, teachers' reports of having received training in the teaching of TUPE lessons were positively associated only at grantee schools with student reports of receiving information about tobacco at school (OR (grantee) = 1.94; 95% CI [1.25, 3.01]), helpfulness of the information (OR (grantee) = 1.73; 95% CI [1.18, 2.52]), being taught about tobacco lessons (OR (grantee) = 2.20; 95% CI: [1.05, 4.63]), about physical harm from smoking (OR (grantee) = 1.91; 95% CI: [1.22, 2.97]), and were marginally associated with being taught about second hand smoke. Coordinators' reports of training were positively associated only at grantee schools with being taught about reasons why people smoke, and physical harm from smoking.

Consistently, in grantee schools but not in non-grantee schools, teacher reports of feeling well-prepared to teach TUPE lessons were positively associated with student reports of receiving information about tobacco at school, helpfulness of tobacco information received, exposure to tobacco lessons, and being taught about reasons why people smoke, smoking prevalence, physical harm from smoking, and second hand smoke. These associations were not significant for coordinator reports.

In sum, students in grantee schools but not non-grantee schools are more likely to report receiving TUPE information, finding the TUPE information helpful, receiving information about tobacco and being taught about the physical harmfulness of tobacco when their TUPE teachers had more tobacco use education training and felt well-prepared to teach TUPE lessons.

Cessation Activities

Cessation Activities

Grantee and non-grantee high schools were evaluated with respect to associations between the availability of special programs for students who want help quitting their smoking habit –as reported by teachers, coordinators, and administrators – and

students' reports of peer abstinence training or cessation classes. A couple of differences were observed between grantee and non-grantee high schools in these associations. For TUPE grantee schools only, teacher reports of on-campus presence of special programs for students who want help quitting smoking were associated with increased likelihood of student reports of cessation classes (OR = 2.82; 95% CI [1.34, 5.93]). Similarly, for TUPE grantee schools only, school administrator reports of special cessation programs were positively associated with student reports of cessation classes (OR = 3.04; 95% CI [1.43, 6.47]). For both TUPE grantee and TUPE non-grantee schools combined, school coordinator reports of special cessation programs were positively associated with student reports of cessation classes (OR = 3.69; 95% CI [2.10, 6.46]).

No associations were observed between student reports of peer cessation/abstinence training and teacher/coordinator/school administrator reports of the on-campus presence of peer counselors, either for TUPE grantees or non-grantees.

Table 7.17. Relationship of Training and Preparedness to Teach TUPE Lessons, to Student Reports of Exposure to Lessons and Lesson Content in Grantee and Non-grantee High Schools

	Training								Preparedness to Teach TUPE Lessons							
	Teacher				Coordinator				Teacher				Coordinator			
	Non-grantee		Grantee		Non-grantee		Grantee		Non-grantee		Grantee		Non-grantee		Grantee	
	OR/ 95% CI	p-val	OR/ 95% CI	p-val	OR/9 5% CI	p-val	OR/9 5% CI	p-val	OR/9 5% CI	p-val	OR/9 5% CI	p-val	OR/ 95% CI	p-val	OR/9 5% CI	p-val
Received information about tobacco at school	0.96 [0.66, 1.41]	0.85	1.94** [1.25, 3.01]	0.00	1.05 [0.72, 1.55]	0.79	0.73 [0.53, 1.01]	0.05	1.13 [0.84, 1.51]	0.41	1.36** [1.10, 1.68]	< 0.01	1.09 [0.88, 1.34]	0.43	1.00 [0.76, 1.31]	0.97
Tobacco information helpful	1.02 [0.70, 1.48]	0.91	1.73** [1.18, 2.52]	< 0.01	1.07 [0.77, 1.50]	0.68	0.77 [0.54, 1.12]	0.17	1.06 [0.81, 1.38]	0.68	1.38* [1.08, 1.77]	0.01	1.06 [0.86, 1.31]	0.57	1.03 [0.78, 1.35]	0.84
Tobacco lessons	1.11 [0.52, 2.37]	0.78	2.20* [1.05, 4.63]	0.04	1.06 [0.70, 1.61]	0.78	0.65 [0.41, 1.03]	0.06	1.01 [0.72, 1.41]	0.97	1.63** [1.14, 2.32]	< 0.01	1.16 [0.90, 1.50]	0.25	1.00 [0.57, 1.73]	0.99
Taught about why people smoke	1.19 [0.85, 1.67]	0.31	1.68 [0.92, 3.07]	0.09	1.10 [0.78, 1.55]	0.60	0.65* [0.45, 0.96]	0.03	1.09 [0.84, 1.42]	0.52	1.71** [1.15, 2.54]	< .01	1.20 [0.98, 1.47]	0.08	0.93 [0.52, 1.68]	0.82
Taught about smoking prevalence	1.37 [0.77, 2.45]	0.28	1.38 [0.95, 2.01]	0.09	0.98 [0.60, 1.58]	0.92	0.68 [0.46, 1.01]	0.06	0.98 [0.69, 1.39]	0.90	1.74** [1.20, 2.53]	0.00	1.26 [0.97, 1.62]	0.08	1.14 [0.63, 2.08]	0.66
Taught about physical harm from Smoking	1.08 [0.65, 1.77]	0.77	1.91** [1.22, 2.97]	< 0.01	1.16 [0.84, 1.60]	0.35	0.61* [0.41, 0.89]	0.01	1.06 [0.79, 1.43]	0.70	1.74** [1.23, 2.45]	0.00	1.11 [0.87, 1.40]	0.40	0.90 [0.49, 1.65]	0.73
Taught about secondhand smoke	1.07 [0.59, 1.91]	0.83	1.84 [1.00, 3.28]	0.05	1.04 [0.74, 1.45]	0.83	0.67 [0.45, 1.00]	0.05	0.99 [0.72, 1.38]	0.97	1.57* [1.03, 2.40]	0.04	1.04 [0.83, 1.29]	0.74	0.89 [0.47, 1.67]	0.71
Refusal skills training	0.96 [0.42, 2.20]	0.93	1.29 [0.80, 2.07]	0.29	0.81 [0.66, 1.00]	0.05	0.83 [0.65, 1.05]	0.11	0.69 [0.46, 1.03]	0.07	1.21 [0.87, 1.67]	0.25	1.22 [0.89, 1.66]	0.22	1.19 [0.83, 1.71]	0.34

Notes:

i. 95% CI is 95% confidence interval; OR is odds ratio, reflecting the odds of students saying “yes” to having been exposed to specific TUPE lessons in response to teachers’ reports of having been trained to teach TUPE lessons and feeling well prepared to teach TUPE lessons, listed separately for TUPE grantee and non-grantee schools

ii. Results come from models that control for student gender, ethnicity, and grade level.

iii. * $0.01 \leq p < 0.05$

** $p < 0.01$

School-wide Anti-tobacco Activities and Institutional support

Number of School-Wide TUPE Activities

The investigators found that for school coordinators, number of school-wide activities was differentially associated with students' reports of exposure to tobacco lessons and lesson content in grantee and non-grantee schools. Table 7.18 shows that in TUPE grant-funded schools only, school TUPE coordinators' reports of school-wide TUPE activities were positively associated with student-reported exposure to information about the physical harm associated with smoking. This association was not significant in TUPE non-grantee schools.

The investigators found no evidence across grantee and non-grantee schools that teacher and administrator reports of number of school-wide anti-tobacco activities were differentially related to student exposure to TUPE services.

The investigators evaluated the hypothesis that school investment in school-wide TUPE activities would be inversely related to the amount of training that teachers received in using the science-based TUPE curriculum on the assumption that TUPE monies spent on school-wide TUPE activities were monies that could not be spent on training teachers to teach TUPE lessons. There was no association between the total number of school-wide TUPE activities reported by the school TUPE coordinator and TUPE coordinator reports of how much training the school's teachers received to teach TUPE lessons.

Table 7.18 School Coordinator Reports of School-wide Activities and Student Reports of Exposure to Program Services in grantee and non-grantee High Schools

Outcome variable	School-wide Activities			
	Non-grantee		Grantee	
	OR/95% CI	p-value	OR/95% CI	p-value
Received information about tobacco at school	1.02 [0.97, 1.08]	0.47	1.01 [0.98, 1.04]	0.42
Tobacco information helpful	1.02 [0.96, 1.07]	0.53	0.98 [0.94, 1.02]	0.37
Tobacco lessons	1.03 [0.97, 1.10]	0.29	1.02 [0.98, 1.05]	0.37
Taught about why people smoke	1.02 [0.96, 1.07]	0.56	0.99 [0.95, 1.03]	0.69
Taught about smoking prevalence	1.03 [0.97, 1.11]	0.33	1.00 [0.91, 1.00]	0.95
Taught about physical harm from smoking	1.02 [0.96, 1.07]	0.55	1.06** [1.02, 1.11]	0.00
Taught about SHS	1.01 [0.96, 1.06]	0.73	0.98 [0.94, 1.02]	0.32
Refusal skills training	0.98 [0.94, 1.02]	0.34	0.99 [0.96, 1.02]	0.48

Notes:

i. 95% CI is 95% confidence interval; OR is odds ratio, reflecting the odds of students saying “yes” to having been exposed to specific TUPE lessons in response to school coordinators’ reports of school-wide TUPE activities, listed separately for TUPE grantee and non-grantee schools.

ii. Results come from models that control for student gender, ethnicity, and grade level.

iii. * $0.01 \leq p < 0.05$

** $p < 0.01$

Summary

The purpose of this chapter was to examine how tobacco prevention policies and practices in CA schools as reported by teachers, TUPE coordinators, and school administrators were related to students’ reported exposure to TUPE information and program services. The investigators also examined differences in these relationships across high schools that received competitive TUPE grants and those that did not receive such grants. The investigators focused on five broad areas of tobacco use prevention/interventions services: (1) tobacco no-use policies; (2) tobacco prevention instruction; (3) school-wide anti-tobacco activities; (4) cessation activities; and, (5) institutional support. Overall, school-level policies and practices, particularly as captured

by TUPE-experienced teachers, were associated with students' reported exposure to tobacco prevention services.

The way that schools enforced their no-tobacco use policies was related to student exposure to prevention services. Use of punitive measures such as expulsion was associated with lower levels of student exposure to TUPE information. Use of supportive measures, such as cessation classes, was associated with higher levels of student exposure to TUPE information.

With regards to tobacco prevention instruction, the investigators found that a history of teaching tobacco prevention lessons, reported past hours of TUPE instruction (teacher), and the use of non-traditional instructional modalities such as small group activities and role-playing were positively associated with student recall of exposure to selected TUPE program services.

Students in schools that sponsored school-wide, tobacco prevention activities were more likely to report the availability of cessation services.

Teacher and school TUPE coordinator perceived support from the school district and the school, in general and in terms of providing clear expectations that tobacco use prevention lessons should be taught, are associated with higher levels of students receiving tobacco-related information and having positive perceptions of its usefulness. This suggests that better quality, more useful, tobacco-related information is provided to students when district administrators expect tobacco prevention lessons to be taught and make clear the priority they place on TUPE programs being implemented.

Many of the associations reviewed above were apparent in TUPE grant-funded schools but not in non-grantee schools. For instance, teacher TUPE training and teacher preparedness to teach tobacco prevention lessons were positively associated with student exposure to program services in grantee schools but not in non-grantee schools. School-wide TUPE activities were associated with student reports of exposure to TUPE program services only in TUPE grantee schools. On the other hand, use of non-traditional pedagogical strategies such as small group discussions and use of role-

playing was positively associated in both TUPE grantee and non-grantee schools with student reports of exposure to selected TUPE program services.

Finally, teachers who used a published, science-based curriculum were more likely to have students reporting having been taught why people smoke, about smoking prevalence, about the physical harmfulness of smoking and obtaining refusal skills training.

Table A7.1 Constructs and Items Used in the Analysis (Adult Survey)

Construct	Question Number (Q)¹	Question
<u>Tobacco Policy</u>		
Enforcement of no-use policy	T Q38 C Q43	In your opinion, to what extent is your school's no-tobacco use policy being enforced during school hours?
Consequences of violation		What is supposed to happen to students who are caught smoking cigarettes or using smokeless tobacco at your school? (Mark all that apply)
Punitive	T Q40_1 C Q42a A Q27a	They are suspended / expelled
	T Q40_8 C Q42h A Q27h	Their parents are called in for a conference
Supportive	T Q40_3 C Q42c A Q27c	They are referred to a special class
	T Q40_4 C Q42d A Q27d	They can choose to attend a special class in lieu of suspension
	T Q40_9 C Q42i A Q27i	They are REFERRED to a tobacco cessation clinic or program
	T Q37_10 C Q42j A Q27j	They are REQUIRED to go to a special tobacco education class (i.e., Saturday school)
<u>Tobacco Prevention Instruction</u>		
Lessons taught	T Q9 C Q10	During the last school year (2004-05), did you teach any tobacco use prevention lessons?
Hours of instruction	T Q10 C Q11	During the last school year (2004-05), on average, how many classroom HOURS did you spend teaching tobacco prevention lessons to a classroom of students? ²
Infusion of tobacco lessons into other subjects	T Q13	During the last school year (2004-05), did you teach any information about tobacco use that you infused into your subject areas (for example, discussing how many people use tobacco as part of a math lesson)?

Table A7.1 Constructs and Items Used in the Analysis (Adult Survey)

Construct	Question Number (Q)¹	Question
<u>Tobacco Prevention Instruction (Cont.)</u>		
Published curriculum	T Q14	During the last school year (2004-05), did you teach any tobacco use prevention lessons from a PUBLISHED curriculum. (Note: By “published” curriculum, the investigators mean those published by commercial companies, community organizations, your school district, etc.)
Topics covered	T Q16_8 C Q22h	During the last school year (2004-05), which of the following topics did you cover in your tobacco prevention lessons? (Mark all that apply) Behavioral skills for resisting tobacco offers
	T Q16_9 C Q22i	General personal and social skills
Mode of delivery		In the tobacco prevention lessons you taught last year (2004-05), how much did you use the following instructional strategies?
Traditional	T Q18a C Q23a	Classroom discussion
	T Q18c C Q23c	Lecture
Non-Traditional	T Q15b C Q23b	Small group activities
	T Q15d C Q23d	Student worksheets
	T Q15e C Q23m	Role-playing
Training	T Q25 C Q30c/d/e	During the past five years, how much tobacco use prevention training have you received?
	T Q27 C Q31	Overall, to what extent do you feel you are prepared to teach tobacco prevention lessons?

Table A7.1 Constructs and Items Used in the Analysis (Adult Survey)

Construct	Question Number (Q)¹	Question
Barriers to teaching lessons	T Q20_1 C Q26a A Q20a	Which of the following have been BARRIERS to your teaching of tobacco prevention lessons? (Mark all that apply) Tobacco use prevention is not part of my curriculum
	T Q20_2 C Q26b A Q20b	Tobacco prevention education is not mandated in my school or school district
	T Q20_3 C Q26c A Q20c	Tobacco prevention is not part of student outcomes that are assessed
	A Q20d	Our teachers are not interested or committed to it.
	T Q20_4 C Q26d A Q20e	Lack of adequate instructional materials (or curricula)
	T Q20_5 C Q26e A Q20f	Lack of time
	T Q20_6 C Q26f A Q20g	Lack of substitute coverage and/or funding to pay for substitutes
	T Q20_7 C Q26g A Q20h	Our school district has not made tobacco prevention a high priority
	T Q18_8 C Q26h A Q20i	Our school administrator has not made tobacco prevention a high priority ³
	T Q18_9 C Q26i A Q20j	I have not received adequate tobacco prevention training ⁴

Table A7.1 Constructs and Items Used in the Analysis (Adult Survey)

Construct	Question Number (Q)¹	Question
<u>School-wide anti-tobacco activities</u>		
Number of school-wide activities	T Q33_1 C Q37a A Q21a	During the last school year (2004-05), did your school do any of the following? (Mark all that apply) Conduct activities as part of the American Cancer Society's "Teen Kick Ash"
	T Q33_2 C Q37b A Q21b	Celebrate a special day called the "Great American Smokeout"
	T Q33_3 C Q37c A Q21c	Hold an assembly or other event about tobacco prevention
	T Q33_4 C Q37d A Q21d	Hold a contest (for example, a poster or essay contest) about tobacco
	T Q33_5 C Q37e A Q21e	Sponsor an anti-tobacco club
	T Q33_6 C Q37f A Q21f	Participate in tobacco prevention activities with the local health department
	T Q33_7 C Q37g A Q21g	Display tobacco-related posters (made by students or others)
	T Q33_8 C Q37h A Q21h	Offer smoking cessation classes or programs
	T Q33_9 C Q37i A Q21i	Celebrate Drug Free Week or Red Ribbon Week
	T Q33_10 C Q37j A Q21j	Other anti-tobacco activity

Table A7.1 Constructs and Items Used in the Analysis (Adult Survey)

Construct	Question Number (Q)¹	Question
<u>Cessation Activities</u>		
Presence of cessation services for students	T Q33_8	During the last school year (2004-2005), did your school offer smoking cessation classes or programs?
<u>Institutional support</u>		
Support from district	T Q8	Does your school district administration expect you to teach tobacco use prevention lessons as part of your curriculum? ⁵
	C Q7	
	T Q28 C Q34 A Q11	To what extent have your school DISTRICT administrators supported you in your teaching of tobacco prevention lessons? ⁶
School Support	T Q6	In relation to other health education topics, what priority does tobacco prevention education hold at your school

Notes: For the following Notes 1-6, item varies across survey.

¹ T, C, and A refer to Teacher, Site-Coordinator, and School Administrator questionnaires, respectively.

² C Q7. During the last school year (2004-05), how many classroom HOURS or class periods did you spend teaching tobacco prevention lessons to a classroom of students?

³ A Q20i. Our school has not made tobacco prevention a high priority.

⁴ A Q20j. Our teachers have not received adequate tobacco prevention training

⁵ C Q7. Do you inform teachers about the district's expectation for teaching tobacco use prevention lessons as part of the school's curriculum?

⁶ C Q34. To what extent have your school district administrators supported you in the implementation of tobacco use prevention lessons at your school?

A Q11. To what extent has the TUPE program coordinator at your school district supported the teachers at your school in their implementation of tobacco prevention lessons and other activities (e.g., provided staff development, new materials, etc.)

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CHAPTER 8: RELATIONSHIP OF SCHOOL-LEVEL POLICIES AND PRACTICES TO STUDENT PROGRAM EXPOSURE

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CHAPTER 8: RELATIONSHIP OF SCHOOL- LEVEL POLICIES AND PRACTICES TO STUDENT TOBACCO USE OUTCOMES

CHAPTER HIGHLIGHTS

- There was consistent evidence that student tobacco use outcomes were improved when teachers reported higher levels of district expectation that they teach TUPE lessons.
- All adult reports of supportive school policies towards student violators of the school's no-use policy were associated with increased prevalence of student tobacco use outcomes and decreased endorsement of anti-tobacco sentiments.
- In TUPE grant-funded schools but not in non-grantee schools, some adult reports of punitive school policies towards student violators of the school's no-use policy were associated with decreased prevalence of tobacco use outcomes.
- Total teacher TUPE instruction time was negatively associated with students' estimates of peer cigarette use; it was positively associated with an intent to not smoke in the future and with belief in the negative social consequences of smoking.
- The teachers' choice of topics to cover in the TUPE curriculum appeared to be associated with student tobacco use outcomes. All topics examined were associated with improved student tobacco use outcomes, including effects of tobacco on physical health, secondhand smoke, prevalence of smoking among students, and refusal skills.
- Use of a published curriculum was associated with decreased lifetime and current student tobacco use and increased likelihood of students reporting their intent not to smoke as well as several protective anti-tobacco sentiments.

Introduction

The results reported in Chapter 7 suggest that school-level tobacco prevention and intervention activities reported by teachers, school TUPE coordinators, and administrators were somewhat associated with variations in students' reported exposure to tobacco use prevention education (TUPE) program services. The purpose of Chapter 8 is to examine how the policies and TUPE program services discussed in Chapter 7 are related to student tobacco use outcomes. The investigators also examined differences in program “effectiveness” in high schools that received competitive TUPE grants relative to those that did not receive such grants.

Throughout this chapter, the investigators discuss and present associations between TUPE policies/practices and student tobacco use outcomes. Although it may be tempting to make inferences about the effectiveness, or lack thereof, of TUPE policies and practices based on these associations – inferences about causality should not be made. The results reported in Chapters 1 through 8 rely exclusively on a cross-sectional design. By contrast, Chapter 9 examines results comparing the same high schools (but not necessarily the same students) in their responses in the 2007-2008 survey compared to their responses in the 2005-2006 survey and therefore permits some inferences about causal direction. Cross-sectional data, on the other hand, do not permit investigators to disentangle the reciprocal influences of school practices and student tobacco use outcomes from each other.

Some examples may help the reader to appreciate the problem of drawing causal inferences from these cross-sectional data. For example, the investigators may find that a particular school practice – such as posting signs on school grounds stating that tobacco use is prohibited – is associated with *greater* levels of student tobacco use. This hypothetical positive association could be interpreted two ways. One could say that posting signs may actually increase student tobacco use [although unlikely] or, conversely, that administrators who discover high numbers of students who smoke at their school may feel compelled to combat the problem by posting signs indicating that tobacco use is prohibited. Another example is the effort to relate school tobacco control

practices to student tobacco use. It is clear that schools' tobacco control policies and practices are influenced by students' tobacco use behavior, so the causal direction from policy to student tobacco use could actually be reversed.

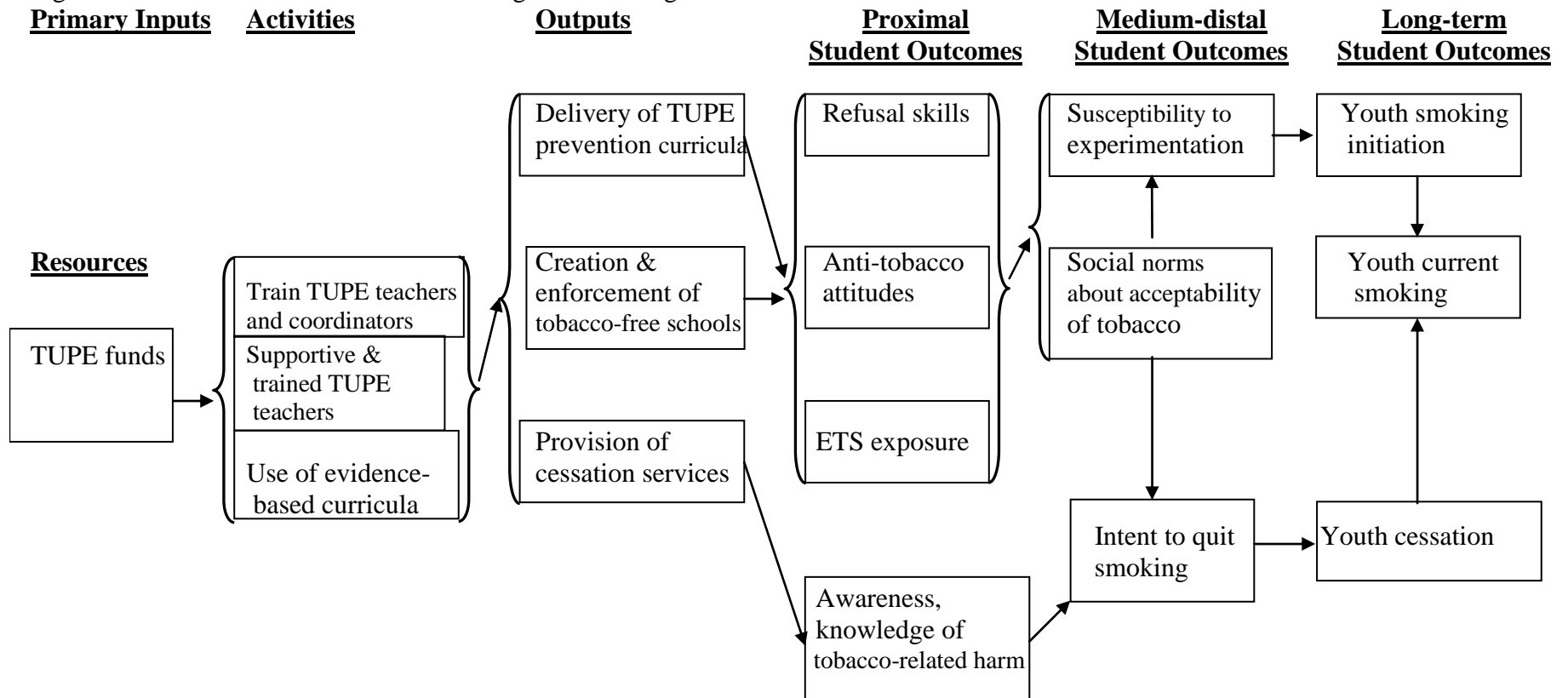
Care should also be taken in interpreting differences in associations between school practices and student outcomes across high schools that received TUPE competitive grants and those that did not receive such grants. Tobacco policies and practices may be more heavily influenced by students' tobacco use behavior in grantee schools simply because these schools have more funds to mobilize prevention resources. If this is the case, the investigators would be more likely to find that a particular school practice aimed at reducing tobacco use is more likely to be associated with higher tobacco use in grantee schools than in non-grantee schools. In other words, schools are not randomly assigned to grantee and non-grantee conditions. Nor are schools randomly assigned to deliver different dosages and/or different types of tobacco prevention and intervention services.

Despite these limitations, the analyses reported herein are still valuable in that they can suggest how different tobacco use policies and practices may affect student tobacco use and the precursors to tobacco use.

Analytic Strategy

The analytic strategy used in this chapter is almost identical to that used in Chapter 7 -except the investigators examine students' reports of actual tobacco use and known precursors to tobacco use instead of students' reports of exposure to TUPE programs and services. Using logistic or ordinary least squares regression models, the investigators modeled each tobacco outcome as a function of policies and practices, grade in school, gender, and a set of dichotomous variables representing racial/ethnic group membership. As with all the analyses in this report (except Chapter 9), the estimation procedures took into account sample weighting, clustering, and stratification.

Figure 1. Subset of In-School Evaluation Logic Model diagram.



This chapter focuses on the section of the logic model in Figure 1 that involves outputs at the school level and outcomes at the student level. In particular, it addresses the relationships of tobacco prevention practices and policies at the schools with proximal, medium-distal, and long-term student outcomes.

Measures

Tobacco Use Policies and Practices

The investigators used the same tobacco use policy and practice measures as were used in Chapter 7 (see Table 7.1 and Appendix Table A7.1).

Student Tobacco Use, and Precursors to Tobacco Use

The investigators examined five measures of smoking prevalence – lifetime cigarette use, lifetime regular cigarette use (100+ cigarettes), 30-day cigarette use (current smoker), frequent cigarette use (20+ days in past 30-days), and 30-day cigarette use on school property. The investigators also examined how proximal factors known to be associated with future smoking (i.e., low endorsement of items assessing the social desirability of smoking) – such as intentions to not smoke, peer cigarette use, and beliefs about the negative social consequences of smoking - are associated with tobacco programs and policies. These proximal factors are also known as “tobacco use precursors.” These measures have been described in more detail in Chapter 3.

School Tobacco Policies and Practices and Student Tobacco Outcomes

No-Use Tobacco Policy

Enforcement of No-Use Policy and Consequences for Students Who Violate Policy

Although student prohibitions against smoking on school grounds are almost universal in California schools, there is some variation across schools in the level of enforcement of these prohibitions. Overall, neither teacher nor coordinator reports of the level of enforcement of no-use policies were related to student reports of smoking or the precursors to smoking. However, punitive and supportive policies regarding the consequences for students who are caught violating their school's no-smoking policy were somewhat related to student tobacco outcomes. The relationships between punitive/supportive responses to student tobacco outcomes are presented in Table 8.1. Several statistically significant associations with precursors of smoking were evident. Based on TUPE school coordinators' reports, punitive consequences were significantly associated with lower prevalence rates of accurate smoking norms (OR = 0.83; 95% CI: [0.70, 0.98]). School TUPE coordinators reported that supportive consequences were significantly related to higher rates of student current cigarette use (OR = 1.22; 95% CI [1.00, 1.88]), peer cigarette use (OR = 1.14; 95% CI [1.01, 1.27]), and were significantly associated with less likelihood of students reporting accurate smoking norms (OR = 0.72; 95% CI [0.62, 0.83]) and beliefs about the negative social consequences of smoking (β = -0.048; 95% CI [-0.092, -0.005]). According to teacher reports, supportive policies were associated with increased likelihood of students reporting frequent cigarette use (OR = 1.25; 95% CI [1.04, 1.50]), cigarette use on school grounds (OR = 1.36; 95% CI: [1.05, 1.75]), and peer cigarette use (OR = 1.08; 95% CI [1.02, 1.15]). Based on school administrators' reports, supportive consequences were significantly related to greater likelihood of students reporting perceived physical harm from smoking.

Some may interpret these tobacco use results to be the unintended result of punitive or supportive policies encouraging smoking. However, it could be that schools with more students who smoke are more likely to shelve their suspension policies and implement more supportive policies to combat student smoking, or that tobacco consuming students drop out of zero-tolerance schools at a greater rate, or both. Students' reports of increases in anti-cigarette industry norms were positively related to school

administrator reports, but only when school administrators indicated that their schools relied more on supportive strategies to enforce their school's tobacco-free policy.

Differences by Competitive Grant Status

Student tobacco outcomes were differentially related in grantee and non-grantee high schools to punitive and supportive policies regarding the consequences for students who are caught smoking on campus. In non-TUPE-funded schools, coordinators' reports of use of a supportive approach to enforcing the school's tobacco-free policy was associated with less likelihood of students reporting accurate smoking norms (OR = 0.76; 95% CI [0.64, 0.91]). In TUPE grant-funded schools, many associations were observed between adult (i.e., teacher / administrator / TUPE coordinator) reports of supportive/punitive policies and student tobacco use outcomes. For instance, teacher reports in TUPE grant-funded schools of use of punitive policies were negatively associated with student reports of having smoked 100 cigarettes (OR = 0.50; 95% CI [0.28, 0.90]), frequent cigarette use (OR = 0.51; 95% CI [0.34, 0.75]) and peer cigarette use (OR = 0.82; 95% CI [0.74, 0.92]), and positively associated with student reports of intent not to smoke (OR = 1.28; 95% CI [1.03, 1.61]). Teacher and TUPE coordinator reports in TUPE-funded schools of supportive policies were associated with increased likelihood of students reporting cigarette use - frequent cigarette use (OR = 1.29; 95% [1.06, 1.56] for teacher, OR = 1.70; 95% CI [1.08, 2.69] for coordinator), smoking in school (OR = 1.41; 95% [1.07, 1.85] for teacher, OR = 1.78; 95% CI [1.03, 3.06] for coordinator), and current cigarette use (OR = 1.38; 95% [1.03, 1.84] for coordinator). Coordinators' reports in TUPE grant-funded schools were also negatively associated with the proportion of students reporting accurate smoking norms (OR = 0.62; 95% CI [0.50, 0.77] for supportive policies and OR = 0.73; 95% CI [0.57, 0.95] for punitive policies), and beliefs about the negative social consequences of smoking (β = -0.069; 95% CI [-0.137, -0.002] for supportive policies). Administrator reports in TUPE-funded schools of supportive policies were negatively associated with the proportion of students endorsing anti-cigarette industry norms (β = 0.056; 95% CI [-0.110, -0.003]).

Table 8.1 Relationship of Consequences of Violation of No-Use Policy to Student Tobacco Outcomes

	Teacher				School TUPE Coordinator				School Administrator			
	Punitive		Supportive		Punitive		Supportive		Punitive		Supportive	
	OR/ β	p-val	OR/ β	p-val	OR/ β	p-val	OR/ β	p-val	OR/ β	p-val	OR/ β	p-val
Lifetime cigarette use	0.92 [0.84, 1.01]	0.08	0.96 [0.88, 1.06]	0.46	1.01 [0.90, 1.13]	0.89	1.11 [0.98, 1.26]	0.09	1.00 [0.90, 1.13]	0.94	1.04 [0.92, 1.17]	0.56
Lifetime 100+ cigarette use	0.77 [0.56, 1.05]	0.10	1.27 [0.93, 1.73]	0.13	1.17 [0.86, 1.60]	0.31	1.37 [1.00, 1.88]	0.05	0.81 [0.55, 1.20]	0.28	1.15 [0.82, 1.63]	0.41
Current cigarette use	0.89 [0.77, 1.02]	0.09	1.11 [0.95, 1.30]	0.19	1.06 [0.90, 1.27]	0.47	1.22* [1.04, 1.43]	0.01	0.95 [0.78, 1.16]	0.62	1.11 [0.95, 1.29]	0.21
Frequent cigarette use (20+ days)	0.76 [0.56, 1.04]	0.09	1.25* [1.04, 1.50]	0.02	0.95 [0.68, 1.33]	0.78	1.18 [0.84, 1.64]	0.33	0.90 [0.62, 1.30]	0.57	1.09 [0.79, 1.52]	0.60
Smoking at school	0.80 [0.59, 1.07]	0.13	1.36* [1.05, 1.75]	0.02	1.18 [0.84, 1.65]	0.35	1.24 [0.89, 1.74]	0.20	0.88 [0.59, 1.33]	0.55	1.29 [0.95, 1.75]	0.11
Intent to not smoke	1.10 [0.98, 1.25]	0.11	0.93 [0.82, 1.06]	0.30	0.99 [0.87, 1.12]	0.85	0.90 [0.79, 1.03]	0.12	1.02 [0.87, 1.20]	0.76	0.94 [0.83, 1.07]	0.38
Ease of cigarette refusal	1.07 [0.97, 1.18]	0.15	0.97 [0.88, 1.07]	0.56	0.98 [0.87, 1.09]	0.65	0.91 [0.81, 1.02]	0.11	0.98 [0.85, 1.12]	0.75	0.99 [0.88, 1.11]	0.84
Peer cigarette use	0.92 [0.83, 1.01]	0.08	1.08* [1.02, 1.15]	0.01	1.02 [0.90, 1.15]	0.78	1.14* [1.01, 1.27]	0.03	1.02 [0.91, 1.14]	0.75	1.02 [0.92, 1.13]	0.74
Accurate smoking norms	1.08 [0.97, 1.21]	0.14	0.92 [0.85, 1.00]	0.06	0.83* [0.70, 0.98]	0.03	0.72** [0.62, 0.83]	0.00	0.97 [0.80, 1.16]	0.72	0.91 [0.78, 1.06]	0.25
Beliefs about the negative social consequences of smoking	0.038 [-.002, .079]	0.06	-0.043 [-.085, .000]	0.05	-0.018 [-.062, .026]	0.41	-0.048* [-.092,- .005]	0.03	0.011 [-.052, .073]	0.74	-0.029 [-.071, .012]	0.16
Anti-cigarette industry norms	0.011 [-.020, .042]	0.49	0.019* [.002, .037]	0.03	-0.008 [-.048, .032]	0.71	-0.014 [-.046, .019]	0.40	0.000 [-.034, .034]	0.98	-0.010 [-.045, .025]	0.58
Perceived physical harm from smoking	0.002 [-.012, .015]	0.82	0.006 [-.003, .015]	0.21	-0.006 [-.022, .010]	0.45	0.015 [-.001, .032]	0.07	-0.008 [-.024, .008]	0.33	0.025** [.010, .040]	0.00

Notes:

i. OR is odds ratio; β is regression coefficient, reflecting how the punitiveness or supportiveness of sanctions against student violations of the school's smoke-free policy affect student reports of tobacco use and tobacco use precursors.

ii. Results come from models that control for student gender, ethnicity, and grade level. Coefficients for "beliefs about the negative social consequences of smoking," "anti-cigarette industry norms," and "perceived physical harm from smoking" come from ordinary least squares regression models. All the other coefficients come from logistic regression models and are expressed as odds ratios.

iii. * $0.01 \leq p < 0.05$ ** $p < 0.01$

Tobacco Related Instruction

Tobacco Lessons, Hours of Instruction, and Infusion of Tobacco-related Topics in the Curriculum

Teacher and TUPE coordinator reports of tobacco lessons taught and infusion of tobacco-related topics in the curriculum were not found to be associated with most of the student tobacco outcome measures assessed but teacher reports of hours of instruction were associated with six different student tobacco outcome measures. These results are shown in Table 8.2. Teacher reports of tobacco lessons taught were significantly related to increased likelihood of students' reporting perceived physical harm from smoking ($\beta = 0.018$; 95% CI: [0.002, 0.035]). Teacher reports of infusion of tobacco related topics in the curriculum were positively associated with students' reporting having smoked more than 100 cigarettes (OR = 1.56; 95% CI: [1.06, 2.29]) and negatively associated with the proportion of students reporting accurate smoking norms (OR = 0.77; [0.66, 0.91]).

Total teacher TUPE instruction time was positively associated with students' stronger beliefs about negative social consequences of smoking (beta = 0.020; 95% CI:[0.007, 0.033]) and intent to not smoke (OR = 1.04; 95% CI: [1.00, 1.08]). Total teacher TUPE instruction time was negatively associated with students' estimates of peer cigarette use (OR = 0.96; 95% CI: [0.92, 0.99]).

Table 8.2 Relationship of Teacher Reports of Tobacco Lessons, Hours of Instruction, and Infusion of Tobacco-related Topics to Student Tobacco Outcomes

	Lessons		Hours of Instructions		Infusion	
	OR/ β	p-value	OR/ β	p-value	OR/ β	p-value
Lifetime cigarette use	0.95 [0.82, 1.09]	0.44	0.96 [0.92, 1.00]	0.07	0.99 [0.85, 1.14]	0.84
Lifetime 100+ cigarette use	1.27 [0.89, 1.81]	0.18	0.96 [0.90, 1.03]	0.28	1.56* [1.06, 2.29]	0.03
Current cigarette use	1.05 [0.88, 1.26]	0.59	0.97 [0.92, 1.02]	0.23	1.14 [0.93, 1.41]	0.20
Frequent cigarette use (20+ days)	1.06 [0.76, 1.49]	0.73	1.02 [0.91, 1.13]	0.77	1.23 [0.81, 1.85]	0.33
Smoking at school	1.14 [0.82, 1.60]	0.41	0.96 [0.87, 1.06]	0.38	1.41 [0.92, 2.14]	0.11
Intent to not smoke	1.03 [0.89, 1.18]	0.70	1.04* [1.00, 1.08]	0.03	0.92 [0.79, 1.07]	0.30
Ease of cigarette refusal	1.04 [0.92, 1.19]	0.49	1.04 [1.00, 1.08]	0.06	0.96 [0.83, 1.11]	0.60
Peer cigarette use	0.98 [0.86, 1.11]	0.72	0.96* [0.92, 0.99]	0.03	1.00 [0.90, 1.13]	0.94
Accurate smoking norms	0.95 [0.80, 1.13]	0.58	1.06 [0.99, 1.12]	0.09	0.77** [0.66, 0.91]	0.00
Beliefs about the negative social consequences of smoking	0.006 [-0.041, 0.053]	0.80	0.020** [0.007, 0.033]	0.00	-0.022 [-0.0081, 0.038]	0.47
Anti-cigarette industry norms	0.017 [-0.023, 0.057]	0.40	0.013 [-0.001, 0.027]	0.07	0.008 [-0.033, 0.049]	0.70
Perceived physical harm from smoking	0.018* [0.002, 0.035]	0.03	0.004 [-0.001, 0.010]	0.10	0.014 [-0.005, 0.034]	0.15

Notes:

i. OR is odds ratio; β is regression coefficient, reflecting how teacher reports of hours of TUPE instruction and number of TUPE lessons taught in the last year relate to student reports of tobacco use and tobacco use precursors.

ii. Results come from models that control for student gender, ethnicity, and grade level. Coefficients for “beliefs about the negative social consequences of smoking,” “anti-cigarette industry norms,” and “perceived physical harm from smoking” come from ordinary least squares regression models. All the other coefficients come from logistic regression models and are expressed as odds ratios.

iii. * 0.01 \leq p < 0.05; ** p < 0.01

Differences by Competitive Grant Status

The relationship of teacher-reported “hours of tobacco-related instruction” to student tobacco use and its precursors was not observed by high school competitive grant status. As shown in Table 8.3, hours of instruction at TUPE-funded high schools appeared to be positively associated with students’ perceived health consequences from smoking at non-grantee schools (beta = 0.008; 95% CI: [0.001, 0.015]). Teacher and TUPE coordinator reports of tobacco lessons and infusion of tobacco-related topics into non-health related subjects were not found to

be differentially related to student tobacco outcomes by high school competitive grant status (not shown).

Table 8.3 Relationship of Teacher Reports of Hours of Instruction to Student Tobacco Outcomes in Grantee/Non-grantee High Schools

	Hours of Instruction			
	Non-grantee		Grantee	
	OR/ β	p-value	OR/ β	p-value
Lifetime cigarette use	0.96 [0.90, 1.02]	0.18	0.99 [0.93, 1.06]	0.82
Lifetime 100+ cigarette use	0.94 [0.87, 1.03]	0.19	1.02 [0.91, 1.13]	0.79
Current cigarette use	0.98 [0.93, 1.03]	0.44	0.99 [0.90, 1.08]	0.77
Frequent cigarette use (20+ days)	1.03 [0.86, 1.23]	0.74	0.95 [0.80, 1.13]	0.56
Smoking at school	1.02 [0.91, 1.14]	0.74	0.92 [0.75, 1.13]	0.44
Intent to not smoke	1.02 [0.99, 1.06]	0.23	1.00 [0.92, 1.07]	0.90
Ease of cigarette refusal	1.01 [0.97, 1.05]	0.57	1.00 [0.94, 1.06]	0.94
Peer cigarette use	0.97 [0.92, 1.01]	0.17	1.01 [0.94, 1.08]	0.84
Accurate smoking norms	1.07 [0.98, 1.17]	0.11	1.01 [0.88, 1.15]	0.91
Beliefs about the negative social consequences of smoking	0.009 [-0.007, 0.026]	0.26	0.021 [-0.003, 0.045]	0.08
Anti-tobacco industry norms	0.009 [-0.017, 0.034]	0.50	-0.002 [-0.023, 0.020]	0.87
Perceived health consequences from smoking	0.008* [0.001, 0.015]	0.03	0.000 [-0.010, 0.010]	1.00

Notes:

i. OR is odds ratio; β is regression coefficient. Results are stratified by TUPE grantee / non-grantee status, permitting side by side comparisons of how much teacher reports of hours of TUPE instruction are associated with student reports of tobacco use and tobacco use precursors.

ii. Results come from models that control for student gender, ethnicity, and grade level. Coefficients for "beliefs about the negative social consequences of smoking," "anti-cigarette industry norms," and "perceived physical harm from smoking" come from ordinary least squares regression models. All the other coefficients come from logistic regression models and are expressed as odds ratios.

iii. * $0.01 \leq p < 0.05$

** $p < 0.01$

Use of Tobacco Prevention Curriculum, Topics Covered, and Mode of Delivery

The investigators found an association between use of a published or non-published tobacco use prevention curriculum and student tobacco use outcomes. Table 8.4 shows that use of published curriculum is associated with decreased lifetime and current cigarette use (OR = 0.84; 95% CI [0.70, 0.99] for lifetime cigarette smoking, OR = 0.81; 95% CI [0.66, 0.99] for current smoking) and increased likelihood of students reporting their intent not to smoke (OR = 1.24;

95% CI [1.06, 1.45]), ease of cigarette refusal (OR = 1.27; 95% CI [1.09, 1.48]), beliefs about the negative social consequences of smoking (β = 0.066; 95% CI [0.005, 0.127]), anti-cigarette industry norms (β = 0.062; 95% CI [0.021, 0.104]), and perceived physical harm from smoking (β = 0.027; 95% CI [0.005, 0.050]).

As shown in Table 8.5, teacher reports of which topics were covered in their TUPE lessons were associated with student tobacco use outcomes. The topics addressed included physical health consequences of smoking, social impacts of smoking, and effects of the media on tobacco use. The topic, “Effects of Tobacco on [Physical] Health,” was found to be negatively related to students' reported lifetime cigarette use and cigarette use on school grounds, and was positively associated with students' reports of intent not to smoke, ease of cigarette refusal, and beliefs about the negative social consequences of smoking. The topic, “How Many Young People Smoke” was negatively related to lifetime cigarette use and having smoked 100 cigarettes, and was positively associated with students' reports of beliefs about the negative social consequences of smoking. The topic, “Second-hand Smoke”, was associated with decreased lifetime cigarette use, and increased likelihood of students' reporting their intent to not smoke, ease of cigarette refusal, and endorsement of anti-cigarette industry norms. The topic, “Social Consequences of Using Tobacco,” was associated with decreased likelihood of students reporting lifetime regular cigarette use, current smoking, and smoking on school grounds, and was positively related to intent not to smoke, ease of cigarette refusal, and beliefs about the social consequences of smoking. The topic, “Behavioral Refusal Skills,” was negatively related to students' reported current cigarette use, frequent smoking status, and cigarette use at school, and was positively associated with increased intent not to smoke, beliefs about the negative social consequences of smoking, and perceived physical harm from smoking.

In short, all statistically significant coefficients were in the expected direction, suggesting that the content of various TUPE lessons helped to reduce students' risk of lifetime cigarette use, current cigarette use and smoking at school, as well as to increase their intention not to smoke in the future and strengthen a variety of anti-tobacco attitudes known to reduce risk of future student tobacco use.

TUPE coordinator and administrator reports of the methods they used to deliver tobacco lessons (e.g., lectures, class discussions) were unrelated to student tobacco use and to the precursors of student tobacco use.

Differences by Competitive Grant Status

The investigators found little evidence that the use of published vs. unpublished curricula, topics covered, or methods of instruction were differentially related to student tobacco outcomes across high schools with competitive grants and those without such grants.

Table 8.4 Relationship of Teacher Reports of Using Published / Unpublished Tobacco Prevention Curriculum to Student Tobacco Outcomes

Outcome variable	Published Curriculum		Non-published Curriculum	
	OR/ β	p-value	OR/ β	p-value
Lifetime cigarette use	0.84* [0.70, 0.99]	0.04	0.95 [0.81, 1.10]	0.49
Lifetime 100+ cigarette use	0.72 [0.49, 1.06]	0.10	1.10 [0.90, 1.33]	0.35
Current cigarette use	0.81* [0.66, 0.99]	0.04	1.03 [0.87, 1.21]	0.77
Frequent cigarette use (20+ days)	0.99 [0.69, 1.43]	0.97	0.97 [0.71, 1.32]	0.85
Smoking at school	0.78 [0.55, 1.11]	0.16	1.07 [0.85, 1.36]	0.56
Intent to not smoke	1.24** [1.06, 1.45]	< 0.01	1.08 [0.96, 1.22]	0.21
Ease of cigarette refusal	1.27** [1.09, 1.48]	0.00	1.11 [0.98, 1.26]	0.10
Peer cigarette use	0.86 [0.74, 1.01]	0.06	1.01 [0.90, 1.14]	0.85
Accurate smoking norms	1.10 [0.89, 1.35]	0.38	0.83 [0.69, 1.01]	0.06
Beliefs about the negative social consequences of smoking	0.066* [0.005, 0.127]	0.04	0.005 [-0.037, 0.047]	0.81
Anti-cigarette industry norms	0.062** [0.021, 0.104]	0.00	0.011 [-0.030, 0.053]	0.59
Perceived physical harm from smoking	0.027* [0.005, 0.050]	0.02	0.017 [-0.002, 0.035]	0.08

Notes:

i. OR is odds ratio; β is regression coefficient, reflecting how teacher reports of having used a published or unpublished curriculum relate to student reports of tobacco use and tobacco use precursors.

ii. Results come from models that control for student gender, ethnicity, and grade level. Coefficients for "beliefs about the negative social consequences of smoking," "anti-cigarette industry norms," and "perceived physical harm from smoking" come from ordinary least squares regression models. All the other coefficients come from logistic regression models and are expressed as odds ratios.

iii. * $0.01 \leq p < 0.05$

** $p < 0.01$

Table 8.5 Relationship of Teacher Reports of Selected Topics in Tobacco Use Prevention Lessons to Student Tobacco Outcomes

	Effects of Tobacco on Health		How Many Young People Smoke		Second-hand Smoke		Social Influences of Using Tobacco		Behavioral Refusal Skills	
	OR/β	p-val	OR/β	p-val	OR/β	p-val	OR/β	p-val	OR/β	p-val
Lifetime cigarette use	0.86*	0.02	0.86*	< 0.05	0.79**	0.00	0.91	0.14	0.82	0.06
	[0.76, 0.98]		[0.74, 1.00]		[0.67, 0.92]		[0.80, 1.03]		[0.67, 1.01]	
Lifetime 100+ cigarette use	0.78	0.18	0.72*	0.03	1.05	0.75	0.71*	0.02	0.70	0.06
	[0.54, 1.12]		[0.53, 0.97]		[0.77, 1.43]		[0.53, 0.95]		[0.49, 1.02]	
Current cigarette use	0.87	0.10	0.84	0.08	0.85	0.08	0.79**	< 0.01	0.77*	0.03
	[0.74, 1.03]		[0.69, 1.02]		[0.71, 1.02]		[0.67, 0.94]		[0.61, 0.98]	
Frequent cigarette use (20+ days)	0.79	0.17	0.78	0.22	1.04	0.79	0.75	0.13	0.64*	< 0.05
	[0.56, 1.11]		[0.52, 1.17]		[0.76, 1.43]		[0.51, 1.09]		[0.42, 0.99]	
Smoking at school	0.68*	0.02	0.73	0.11	0.96	0.79	0.65*	0.03	0.62*	0.02
	[0.50, 0.93]		[0.50, 1.07]		[0.71, 1.30]		[0.45, 0.96]		[0.41, 0.93]	
Intent to not smoke	1.16*	0.02	1.15	0.05	1.19**	< 0.01	1.17**	< 0.01	1.21*	0.02
	[1.03, 1.31]		[1.00, 1.31]		[1.05, 1.36]		[1.04, 1.32]		[1.04, 1.42]	
Ease of cigarette refusal	1.14*	0.03	1.14	0.06	1.23**	0.00	1.13*	< 0.05	1.16	0.06
	[1.02, 1.28]		[1.00, 1.29]		[1.10, 1.37]		[1.00, 1.28]		[0.99, 1.37]	
Peer cigarette use	0.92	0.16	0.93	0.34	0.87	0.07	0.92	0.25	0.85	0.08
	[0.82, 1.03]		[0.79, 1.08]		[0.74, 1.01]		[0.81, 1.06]		[0.71, 1.02]	
Accurate smoking norms	1.02	0.83	1.13	0.31	1.08	0.54	1.18	0.11	1.19	0.26
	[0.86, 1.22]		[0.89, 1.45]		[0.85, 1.36]		[0.96, 1.45]		[0.88, 1.61]	
Beliefs about the negative social consequences of smoking	0.044*	< 0.05	0.061*	0.03	0.032	0.19	0.062*	0.01	0.083**	0.00
	[0.000, 0.088]		[0.008, 0.114]		[-0.016, 0.079]		[0.015, 0.110]		[0.028, 0.138]	
Anti-cigarette industry norms	0.010	0.64	0.041	0.16	0.049*	0.03	0.025	0.27	0.045	0.10
	[-0.034, 0.054]		[-0.016, 0.097]		[0.004, 0.094]		[-0.020, 0.069]		[-0.009, 0.099]	
Perceived physical harm from Smoking	0.012	0.19	0.012	0.13	0.009	0.36	0.007	0.45	0.030**	0.00
	[-0.006, 0.029]		[-0.003, 0.028]		[-0.010, 0.029]		[-0.011, 0.026]		[0.011, 0.049]	

Notes:

i. OR is odds ratio; β is regression coefficient, reflecting how teacher reports of selected tobacco prevention topics affect student reports of tobacco use and tobacco use precursors.

ii. Results come from models that control for student gender, ethnicity, and grade level. Coefficients for "beliefs about the negative social consequences of smoking," "anti-cigarette industry norms," and "perceived physical harm from smoking" come from ordinary least squares regression models. All the other coefficients come from logistic regression models and are expressed as odds ratios.

iii. * 0.01 ≤ p < 0.05

** p < 0.01

School-wide Anti-tobacco Activities

Number of School-wide Anti-tobacco Activities

Our analysis suggests that the number of school-wide tobacco prevention activities that took place at schools during the year prior to the survey was unrelated to most of the student tobacco use outcomes and unrelated to most precursors. Out of the 12 student tobacco outcomes listed in Table 8.5, only two showed any association with number of school-wide tobacco prevention activities, across the three types of adult respondents, as Table 8.6 illustrates. Teacher-reported number of school-wide TUPE activities was positively related to student's endorsement of anti-cigarette industry norms and their likelihood of perceiving smoking as physically harmful.

Differences by Competitive Grant Status

No evidence was found to support the notion that the relationship between the number of school-wide tobacco prevention activities and student tobacco outcomes was different at grantee or non-grantee high schools.

Table 8.6 Relationship of School-Wide Activities to Selected Student Tobacco Outcomes

	Teacher		School Coordinator		School Administrator	
	β	<i>p-value</i>	β	<i>p-value</i>	β	<i>p-value</i>
Beliefs about the negative social consequences of smoking	-0.007 [-0.026, 0.012]	0.47	-0.009 [-0.018, 0.000]	0.06	-0.004 [-0.013, 0.005]	0.36
Anti-cigarette industry norms	0.009* [0.002, 0.016]	0.02	0.001 [-0.004, 0.007]	0.67	0.001 [-0.008, 0.009]	0.88
Perceived physical harm from smoking	0.004* [0.000, 0.007]	0.04	0.002 [-0.001, 0.005]	0.25	0.003 [-0.000, 0.005]	0.08

Notes:

i. β is regression coefficient, reflecting how teacher / school coordinator / school administrator reports of school-wide TUPE activities affect student reports of tobacco use and tobacco use precursors.

ii. Results come from models that control for student gender, ethnicity, and grade level. Coefficients come from ordinary least squares regression models.

iii. * $0.01 \leq p < 0.05$ ** $p < 0.01$

Institutional Support for TUPE, either from the district or the school

Support from District, and Priority of Tobacco Use Prevention at School

The investigators next examined how issues surrounding the institutional support for tobacco use prevention education (TUPE) at schools were related to student tobacco use outcomes, focusing on the level of support received from the district and the priority given to tobacco use prevention at the school. Our analyses indicated that teachers' reporting that their district expected them to teach tobacco-related lessons was significantly related to decreased likelihood of student reports of lifetime cigarette use (OR = 0.79; 95% CI: [0.66, 0.94]), and associated with increased likelihood of intent not to smoke (OR = 1.22; 95% CI [1.05, 1.42]), ease of cigarette refusal (OR = 1.20; 95% CI [1.03, 1.39]), and anti-cigarette industry norms (β = 0.046; 95% CI [0.005, 0.087]).

By contrast, the investigators found no evidence that teachers' reports of perceived support for tobacco use prevention education from the district was related to any of the student outcomes assessed except for one. As presented in Table 8.7, students in schools where teachers reported that the district supported their teaching of tobacco use prevention lessons were more likely to report accurate smoking norms (OR = 1.31; 95% CI: [1.05, 1.64]).

Differences by Competitive Grant Status

With respect to the association of support from the district for tobacco use prevention with student tobacco outcomes, no differences were apparent between grantee and non-grantee high schools. Grantee/non-grantee differences were not detected when analyzing the relationship between teacher and coordinator reports of their district's priority for tobacco use prevention with student tobacco use outcomes.

Table 8.7 Relationship of Support from District to Student Tobacco Outcomes

	Teacher				School Coordinator			
	Expected to teach		Level of support		Expected to teach		Level of support	
	OR/ β	<i>p-val</i>	OR/ β	<i>p-val</i>	OR/ β	<i>p-val</i>	OR/ β	<i>p-val</i>
Lifetime cigarette use	0.79*	0.01	0.98	0.87	0.99	0.88	1.02	0.83
	[0.66, 0.94]		[0.81, 1.20]		[0.86, 1.14]		[0.88, 1.18]	
Lifetime 100+ cigarette use	0.82	0.26	1.12	0.81	1.10	0.60	0.91	0.60
	[0.57, 1.16]		[0.43, 2.91]		[0.76, 1.59]		[0.63, 1.30]	
Current cigarette use	0.84	0.07	0.98	0.92	1.01	0.93	0.97	0.73
	[0.69, 1.01]		[0.60, 1.59]		[0.84, 1.21]		[0.80, 1.17]	
Frequent cigarette use (20+ days)	1.01	0.96	1.07	0.89	1.30	0.08	0.91	0.55
	[0.69, 1.47]		[0.41, 2.79]		[0.97, 1.74]		[0.65, 1.26]	
Smoking at school	0.82	0.29	0.90	0.84	1.13	0.45	0.85	0.29
	[0.57, 1.18]		[0.30, 2.67]		[0.82, 1.55]		[0.62, 1.15]	
Intent to not smoke	1.22*	0.01	1.02	0.89	1.02	0.82	1.08	0.36
	[1.05, 1.42]		[0.77, 1.35]		[0.88, 1.17]		[0.92, 1.26]	
Ease of cigarette refusal	1.20*	0.02	1.09	0.50	1.05	0.43	1.08	0.27
	[1.03, 1.39]		[0.85, 1.39]		[0.93, 1.18]		[0.94, 1.24]	
Peer cigarette use	0.88	0.14	0.98	0.88	0.98	0.73	0.88	0.07
	[0.75, 1.04]		[0.81, 1.20]		[0.86, 1.11]		[0.77, 1.01]	
Accurate smoking norms	1.18	0.14	1.31*	0.02	0.97	0.71	1.05	0.66
	[0.95, 1.47]		[1.05, 1.64]		[0.81, 1.15]		[0.86, 1.28]	
Beliefs about the negative social consequences of smoking	0.036	0.17	0.042	0.50	-0.023	0.28	0.037	0.15
	[-0.016, 0.087]		[-0.082, 0.166]		[-0.066, 0.019]		[-0.014, 0.088]	
Anti-cigarette industry norms	0.046*	0.03	0.049	0.07	0.035	0.09	0.020	0.34
	[0.005, 0.087]		[-0.004, 0.102]		[-0.006, 0.077]		[-0.021, 0.062]	
Perceived physical harm from smoking	0.013	0.31	0.05	0.74	-0.010	0.21	0.003	0.71
	[-0.012, 0.038]		[-0.024, 0.034]		[-0.025, 0.005]		[-0.015, 0.021]	

Notes:

i. OR is odds ratio; β is regression coefficient, reflecting how teacher and school administrator reports of support from the district for the school's TUPE program affect student reports of tobacco use and tobacco use precursors.

ii. Results come from models that control for student gender, ethnicity, and grade level. Coefficients for "beliefs about the negative social consequences of smoking," "anti-cigarette industry norms," and "perceived physical harm from smoking" come from ordinary least squares regression models. All the other coefficients come from logistic regression models and are expressed as odds ratios.

iii. * $0.01 \leq p < 0.05$

** $p < 0.01$

Summary

This chapter examined how tobacco prevention policies and practices in California schools were related to student tobacco use and proximal precursors to tobacco use, such as students' intention not to smoke. The investigators also examined differences in these relationships across high schools that received competitive TUPE grants and those that did not receive such grants.

The evidence reviewed in this chapter confirms evidence from chapters 4 and 7 that district support for teachers to teach TUPE lessons is associated with improved tobacco control outcomes for students. When teachers expressed confidence that the district expected them to teach TUPE lessons, this confidence was associated with improved student tobacco use outcomes.

Findings in this chapter concerning the impact of use of supportive or punitive consequences for students found violating the schools' no-smoking policy appear inconsistent with the associations reported between schools' use of supportive or punitive consequences and students' reported exposure to TUPE services in chapter 7. In chapter 7, use of supportive consequences was associated with improved outcomes with respect to students recalling exposure to TUPE program messages. In this chapter, results indicated that use of supportive consequences was associated with increased prevalence of student tobacco use outcomes and decreased student endorsement of various anti-tobacco sentiments. Because causal direction in this association is unknowable from a single set of cross-sectional data, we cannot dismiss the possibility that supportive policies are the result of high student tobacco use rather than supportive policies causing higher levels of student tobacco use. More research is needed to understand under what conditions a punitive strategy might be the more effective option and under what conditions a supportive strategy would be the better option.

Teacher reports of hours of instruction were associated with three different student tobacco use outcome measures, confirming 2005-2006 findings that teacher TUPE instructional time is an important predictor of student tobacco use outcomes. For

example, total teacher TUPE instruction time was negatively associated with students' estimates of peer cigarette use. It was positively associated with protective beliefs about the negative social consequences of smoking and was positively associated with the students' intent to not smoke.

The teachers' choice of what topics to cover in their TUPE curriculum appears to be associated with student tobacco use outcomes. Consistent with findings from the 2005-2006 IETP, the topics associated with improved student tobacco use outcomes included effects of tobacco on health, secondhand smoke, and refusal skills..

Finally, more so than in past IETP reports, the evidence was clear that use of a published curriculum was associated with student reports of decreased lifetime and current tobacco use and was also associated with students' increased intent not to smoke, as well as with several other protective anti-tobacco sentiments.

In other respects, associations between student tobacco use and tobacco use precursors were not associated differentially with program policies and practices in grantee vs. non-grantee schools.

The consistent associations observed between teacher reports of district expectation that they should be teaching TUPE lessons with lower student tobacco use and similar associations observed between teacher-reported choice of TUPE lesson topics and student tobacco use might suggest that district policies and teacher practices with respect to tobacco use prevention can be effective in reducing student tobacco use. The cross-sectional nature of the survey data that are the basis of these analyses precludes asserting causal direction, however.

Nonetheless, the safest conclusion from the foregoing is that school districts might do well, when they distribute TUPE funding to their schools, to do what they can to convince teachers and other school staff that the district supports their teaching TUPE lessons and to encourage them to address lessons about true prevalence of adolescent tobacco use, the social consequences of tobacco use and the health consequences of

tobacco use, because the teaching of these topics appears to be associated with lower student tobacco use.

Another reasonable conclusion is that TUPE grant-funded schools might do better to get one or two teachers to do all of the TUPE lessons in the school rather than spreading the responsibility more widely. TUPE teaching effectiveness appears to be enhanced when the teachers report that their number of TUPE-related hours of instruction is high. Experience, as demonstrated for clinical interventions on health outcomes in medicine, (Begg, Cramer, Hoskins, & Brennan, 1998) typically produces improved outcomes. Those teachers with the most hours of TUPE experience appear to be the teachers with the strongest associations with improved student tobacco use outcomes.

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CHAPTER 9: SCHOOL AND BIRTH COHORT ANALYSIS: EXAMINATION OF CHANGES OVER TIME IN HIGH SCHOOLS SURVEYED TWICE

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CHAPTER 9: SCHOOL AND BIRTH COHORT ANALYSIS: EXAMINATION OF CHANGES OVER TIME IN HIGH SCHOOLS SURVEYED TWICE

CHAPTER HIGHLIGHTS

- **Student anti-smoking attitudes, beliefs and social environments became stronger in high school students over time. However, student attitudes about the tobacco industry became less negative over time.**
- **Regarding tobacco prevention program structure in this cohort of high schools, there was little evidence of overall change in the type and level of tobacco use prevention education (TUPE) program implementation between the 2005-2006 and 2007-2008 academic years.**
- **TUPE-funded grantee high schools reported higher levels and quality of tobacco prevention-related activities compared to non-grantee schools at each time point. These TUPE-funded implementation advantages appeared to be mediated through district-level support for these activities, which was, itself, directly associated with TUPE funding status.**
- **Evidence suggests that school-level TUPE activities were associated with changes in student tobacco use and intentions, but not with many of the hypothesized intermediate tobacco use precursors.**
- **Among the precursors to smoking, only smoking intentions and positive social outcome expectancies were predictive of changes in smoking.**
- **The association of school TUPE activities with changes in student smoking was not explained by contextual factors such as size of school enrollment, socio-economic factors, or non-school based tobacco control activities.**
- **The pattern of findings for results based on three assessments largely replicated the pattern described for the most recent two-assessment comparison.**

Introduction

Previous chapters in this report have described a variety of student tobacco use-related outcomes, the policies and practices implemented in CA schools intended to influence those outcomes, and the relationships between student tobacco use outcomes and school policies and practices using a student population-based survey at one time point, the 2007-2008 academic year. Descriptions in previous chapters provide the best estimates for current types and amounts of those activities, attitudes and behaviors.

This chapter presents a cohort design analysis of the preceding constructs and their relationships to each other and over time, using data from the school-longitudinal component of the 2007-2008 evaluation design. The school-longitudinal component consisted of 1) a two-wave re-assessment of high schools, and birth cohorts within those schools, originally part of the 2005-2006 IETP evaluation sample, and 2) a three-wave re-assessment of high schools, and birth cohorts within those schools, originally part of the 2003-2004 IETP evaluation sample. Specifically, most of this chapter focuses on the analysis of cohort data obtained in 2005-2006 and 2007-2008 from a single set of high schools. The final section of this chapter examines the question whether the trends observed in 2005-2006 through 2007-2008 also apply to the period 2003-2004 through 2007-2008. This chapter provides the following:

1. A re-examination of grade trends in smoking and smoking-related attitudes over the two-year period.
2. An examination of summary measures of school program components and their stability over time.
3. An examination of how TUPE funding and district support relate to school implementation component summary measures.

4. An examination regarding how school TUPE implementation is related to changes in tobacco use-related knowledge, and attitudes over the two-year period.
5. An examination of how tobacco use-related knowledge, attitudes, and behavioral outcomes relate to each other as students mature over the two-year period.
6. An examination of the relative impact of community-level influences on student tobacco use over the two-year period.
7. An examination of how TUPE funding related to school TUPE activities over the 2003-2004 through 2007-2008 period and whether this relationship was moderated by school-level characteristics.

Chapter 9 begins by briefly describing the two-time point sample, methods and measures used in this cohort analysis and is further organized into seven sub-sections, each addressing one of the analytic goals above.

The seventh subsection presents a grade cohort design analysis examining the impact of school policies and practices on student tobacco use outcomes using data from schools which have participated in three time points of data collection, encompassing the time periods: 2003-4, 2005-6 and 2007-8.

Sample

Sixty-five high schools that participated in the 2003-2004 IETP were deliberately re-invited to participate in the 2005-2006 and 2007-2008 IETP for the purpose of conducting a school-level longitudinal (cohort) analysis. Because they were randomly selected (by region) in 2003-2004, they were treated as though they had been randomly selected in the current sample for prevalence estimation purposes. Of the 65 high

schools that were invited, 48 schools agreed to participate in both the 2005-2006 and 2007-2008 survey (73.8% response rate). Over half of the high schools (n=26) were current TUPE grantees.

At the second stage of sampling, 1-2 classes per grade were randomly selected from each school. All students within a selected class were eligible to participate.

Approximately 9,000 students from each type of school (grantee and non-grantee) participated in the survey. **Table 9.1** presents the demographic characteristics of the sample by competitive grant status.

Table 9.1 Demographic Characteristics of Re-Surveyed High Schools by Non-Grantee and Grantee Status

	Competitive Grant Status*		<i>p-value</i>
	<u>Non-grantee</u>	<u>Grantee</u>	
	<u>mean or %, (s.d.)</u>	<u>mean or %, (s.d.)</u>	
Student Enrollment (mean)	2,451 (776)	2,327 (787)	0.61
African American (%)	4.1 (5.0)	6.9 (6.5)	0.12
Hispanic/Latino(a) (%)	37.7 (29.6)	36.2 (25.5)	0.86
Caucasian, non-Hispanic/Latino(a) (%)	41.7 (28.2)	42.3 (30.4)	0.94
Subsidized Meals (%)	31.2 (23.3)	27.2 (20.9)	0.57
Academic Performance Index (standardized achievement test scores)	744 (80)	754 (65)	0.65
Parental Education (1=less than high school, 5=graduate degree)	2.9 (1.0)	3.1 (0.7)	0.32
Duration of Current Funding (months)	-	113.9 (31.3)	-
Number of students surveyed (Grades 9-12) at both time points	7886	10713	-
Number of schools	20	28	

* See footnote below.

As in the full cross-sectional sample, there were no statistically significant differences regarding the characteristics of the TUPE-funded and non-TUPE-funded high schools in the repeated assessment sample.

Weighting

A weight was applied to each student record to adjust for varying probabilities of selection at each sampling stage, for student non-response, and for disproportionate population sampling. In the analysis presented in this chapter the weights were constructed such that each school and each grade within the school had an equal weight. This equal school weighting scheme differs from that used in other chapters, which used design-based student population weights to generate results generalizable to all (public) high school **students** throughout the state. In this chapter, by contrast, the primary interests included generalizing results to high schools and examining relative differences between groups of high schools or between time points. An equal school-grade weighting scheme was appropriate for this type of model-testing.

The specific weight used for each student (i) is given by:

$$W_{igs} = 47.3 * N_{gs}^{-1}$$

Where N_{gs}^{-1} represents the inverse of the sample size in each grade (g) in each school (s). The value of 47.3 is the average N_{gs} . Similarly, the adult survey data were weighted by the inverse of the number of respondents of each type of adult respondent at the school (i.e. teachers' responses at each school were averaged) with schools having an equal weight.

The student weights were scaled so that the sum of the weights was equal to the number of respondents, and the sum of the adult weights was equal to the sum of the number of schools.

Grade and Birth Cohorts

Typically, results over time from population-based school health surveys are presented for students at fixed grades over time, for example, the 8th grade tobacco use rates at each year as shown in Chapter 2, Table 2.10. In this chapter, we define these types of trends over time as grade cohort trends, because values are computed among students sharing a common grade. These types of trends are useful because they define expectations year to year in levels of skills or behaviors at a single point of student maturation. Changes in levels year to year are often attributable to environmental factors, such as an educational program. However, these types of trends are inherently cross-sectional at a student level because a sample from a new group of students is measured at each time point.

In contrast, birth cohort is defined here as a group of students who share the same birth year. Trends over time in this type of cohort follow any developmental continuum that may exist with age. These trends are inherently longitudinal in that either the same students or a similar sample of students on the same development trajectory were measured at each time. Birth cohort trends are useful because they have expected rates of growth (as opposed to levels) over time that can be evaluated as a function of exposures to environmental factors such as educational programs. A high school measured over a two-year interval contains a student birth cohort of 9th and 10th graders most of whom become the school's 11th and 12th graders two years later.

The data collected for this evaluation permitted an examination of both types of cohorts over the most recent two-year period. The grade cohort trends in student outcomes are presented for the full sample of schools in prior chapters and are briefly re-examined here in the subset of 48 high schools followed over time. Students in the birth cohort sub-sample followed over time constitute the primary sample for the remaining

analyses. The reader is reminded that all surveys were completed anonymously, so it was not possible to follow individual students. It was possible to follow only their grade-cohort as it changed from 9th grade to 11th grade or from 10th to 12th grade.

Analytic Strategy

The primary analysis strategy employed the birth cohort sub-sample and variants of the random coefficients model, also known as the hierarchical linear model (HLM, Raudenbush & Bryk, 2002). The HLM model can be conceptualized as a two-stage system of equations in which the individual variation within each school is explained by a student-level equation (level-1), and the variation across schools in the school-specific regression coefficients is explained by a school-level equation (level-2).

In the first stage, a separate student-level regression is defined for each school (j). In this first stage, the units of analysis are individuals (i) and the specified regression models are of the following general form:

$$\text{Outcome}_{ij} = \beta_{0j} + \beta_{1j} * \text{Year}_{ij} + \beta_2 * \text{Demographics}_{ij} + e_{ij} \quad [1^1]$$

In this equation, the random coefficient, β_{1j} represents the mean change of the outcome variable between the two time points for the birth cohorts at each school (j). That is, the cohort trends in outcomes for grade 9 & 10 students in 2005-2006 as they move to grades 11 & 12 in the 2007-2008 school year.

In a second stage, each of the cohort trends in school means (β_{1j}) is modeled as a function of school-level input, TUPE activity, and output variables (collectively labeled here as 'practices') and other external factors. In this second stage, the units of analysis are schools and the specified regression models have the following general form:

¹ For binary outcomes, the logistic link function is used, see Chapter 7, footnote 1.

$$\beta_{1j} = \gamma_{10} + \gamma_{11} * \text{Practices}_j \dots + \gamma_{12} * \text{ExternalFactors}_j \dots + \mu_{1j} \quad [2]$$

$$\beta_{0j} = \gamma_{00} + \gamma_{01} * \text{Practices}_j \dots + \gamma_{02} * \text{ExternalFactors}_j \dots + u_{0j} \quad [3]$$

In these equations, γ_{10} represents the mean cohort trend across schools and γ_{11} indexes the association between the practices and the cohort trend (change in outcome). The influences of school and community level external factors such as school size, relative affluence, or region are captured by γ_{12} . Similarly, equation 3 coefficient γ_{00} represents the overall average of the Outcome, γ_{01} indexes the average effect of Practices on the outcome, and γ_{02} indexes the average effect of the external factors.

Equations 1, 2, and 3 above are combined into a single equation for estimation purposes:

$$\text{Outcome}_{ij} = \gamma_{00} + \gamma_{10} \text{Year}_{ij} + \gamma_{01} \text{Practices}_j + \gamma_{11} \text{Practices}_j * \text{Year}_{ij} + \dots + u_{1j} X_{ij} + u_{0j} + e_{ij} \quad [4]$$

Of particular interest in the combined equation are: the coefficient on $\gamma_{10} \text{Year}_{ij}$, which again specifies the change in the outcome over time; the coefficient γ_{01} on Practice_j , which specifies the association of Practices on the outcome at baseline; and the coefficient γ_{11} on the interaction term between Year_{ij} and Practices_j which specifies the effects of Practices on changes in Outcomes.

These 'birth-cohort' models will be applied when examining student outcomes in the birth cohort sub-sample. Grade-cohort models are estimated using students from all grades at each year and specified conceptually by replacing 'year' with 'grade' in equation [1] and moving 'Year' to equation [2] in place of 'practices.'

Measures

Student Tobacco Use and Precursors to Tobacco Use

Four binary measures of cigarette use were examined – lifetime cigarette use, 30-day cigarette use (current smoker), frequent cigarette use (20+ days in past 30 days), and 30-day cigarette use on school property. In addition, two measures of other tobacco use – smokeless tobacco use in the last 30 days and cigar use in the last 30 days were examined with items defined in Chapter 2. In this chapter, the investigators also defined a multi-item Smoking Index as the standardized sum of the four cigarette and one cigar smoking measures ($\alpha=0.68$).

Multi-item scales were constructed to serve as precursors of smoking, similar to those defined in earlier chapters (see Chapter 3, Table 3.1). In this chapter, we further differentiated the tobacco use-related attitude and belief items into positive and negative valence item sets. Recent research has shown that youth hold independent positive and negative expectancies about the consequences of health-compromising behaviors. The same research suggests that expected positive consequences may be more predictive of youth engaging in these health-compromising behaviors than expected negative consequences (Simons-Morton et al., 1999). Appendix Table A9.1 shows the items used to form the scales described in this chapter. Unlike other chapters, these measures were not dichotomized for analysis. Rather, they were kept as multi-point continuous measures and transformed to a common scale (standard deviation =1.0).

Tobacco Use Policies and Practices

The tobacco use policy and practice measures used in this Chapter are equivalent to those used in Chapter 7 (see Table 7.1 and Appendix Table A7.1). In this Chapter, the investigators further constructed multi-item summary indices from these measures by standardizing the sum of the items listed in each of the six broad areas of tobacco use prevention/intervention services: (1) no-tobacco use policies, (2) tobacco-related instruction, (3) school-wide anti-tobacco activities, (4) cessation activities, (5) parent involvement, and (6) governance/support. The summary measures used reports from the school tobacco coordinators and in the case of the instructional area, additional reports from the teachers who had taught tobacco lessons were used. A global implementation index was constructed as the sum of the first five component indices.

These models tested for the overall time trend in the tobacco use-related behavior or attitude in the repeated high school sample, and also for possible differences in time trends across grade, gender, ethnic, and region-specific groups using time by subgroup interactions. The overall gender, ethnic, and region-specific trends were collapsed over all grade 9-12 students at each time point. In these analyses, the focus was on the changes over time in high school student tobacco use-related behaviors and attitudes using a before-and-after set of schools. We used equal weighting of schools and grades, and included school enrollment size as a covariate. A logistic link function was used for testing trends in binary outcomes measures, and normal link function for the continuous measures.

Lifetime Smoking

No significant change was found in the overall estimate of lifetime smoking (-1.6%. SE =0.9) over time ($t = -1.58$, $p = 0.122$). Lifetime smoking prevalence did vary with grade (increases with age), gender (males higher), ethnicity (Asians lower), and region. Changes in Lifetime smoking prevalence over time varied only with region ($F = 49.71$,

p=0.001) with regions 2, 6, and 7 (San Diego, Riverside, and San Bernardino Counties) exhibiting statistically significant reductions in lifetime use, and regions 4 and 10 (Santa Clara and El Dorado counties) exhibiting significant increases, relative to other regions (counties). There were no other significant changes over time in subgroup-specific rates of lifetime smoking.

Table 9.2 Lifetime smoking (Grade Cohorts)							
		2005-2006			2007-2008		
Grade	N	Estimate	Lower Bound	Upper Bound	Estimate	Lower Bound	Upper Bound
9	4201	30.1%	28.1%	32.1%	28.4%	26.5%	30.3%
10	4689	38.3%	36.3%	40.2%	35.2%	33.3%	37.2%
11	4679	43.7%	41.6%	45.7%	42.8%	40.8%	44.8%
12	5030	49.2%	47.2%	51.2%	48.1%	46.2%	50.0%
All	18599	40.3%	39.3%	41.3%	38.7%	37.7%	39.7%

Smoking in the Last 30 Days (Current Smoking)

There was no significant increase in the overall prevalence of current smoking ($t=0.85$, $p<0.402$). As with lifetime smoking, the current smoking rate did vary at both time points with grade (increases with grade), gender (males higher), and ethnicity (Asians lowest), and by region. The lack of estimated time trend increase held for each subgroup except region, with regions 10 (El Dorado) and 11 (Sacramento Area Counties) showing significant increases, and region 6 (Riverside) showing a decrease in current smoking over time.

Table 9.3 Current smoking (Grade Cohorts)							
		2005-2006			2007-2008		
Grade	N	Estimate	Lower Bound	Upper Bound	Estimate	Lower Bound	Upper Bound
9	4201	10.5%	9.2%	11.8%	10.5%	9.2%	11.8%
10	4689	14.0%	12.6%	15.4%	13.4%	12.0%	14.8%
11	4679	16.3%	14.8%	17.8%	17.6%	16.0%	19.1%
12	5030	19.3%	17.7%	20.8%	20.5%	18.9%	22.0%
All	18599	15.0%	14.3%	15.8%	15.5%	14.8%	16.3%

Smoking 20 or More Days in Last Month (Frequent Smoking)

There was no significant change in the prevalence of frequent smoking in the repeated high schools [0.1% (SE =0.3%; t=1.12, p=0.271)]. As was seen with the other smoking behaviors, frequent smoking varied at both times with grade, gender, ethnicity, and region, with which varied somewhat over time in trends. There were no grade, gender, and ethnicity subgroup variations in the time trend increase observed for frequent smoking.

Table 9.4 Frequent Smoking (Grade Cohorts)							
		2005-2006			2007-2008		
Grade	N	Estimate	Lower Bound	Upper Bound	Estimate	Lower Bound	Upper Bound
9	4201	2.1%	1.5%	2.7%	2.0%	1.4%	2.6%
10	4689	3.1%	2.4%	3.8%	2.7%	2.0%	3.3%
11	4679	3.5%	2.8%	4.3%	5.3%	4.4%	6.2%
12	5030	4.8%	3.9%	5.6%	5.0%	4.2%	5.8%
All	18599	3.4%	3.0%	3.7%	3.8%	3.4%	4.1%

Smoking at school in the last 30 days

There was no significant increase in the prevalence of smoking at school ((0.7%, SE = 0.4%, t = 1.48, p = 0.147). Interestingly, no significant variation was found in smoking at school by grade level (t = 0.60, p = 0.61). Variations did occur at each time point by gender and ethnicity and by region. The only significant variation in the time trend for any subgroup was variation involving region, with region 7 (San Bernardino) showing an increase, and region 10 (El Dorado) showing a decrease in smoking at school rates.

Table 9.5 Smoking at School (Grade Cohorts)							
		2005-2006			2007-2008		
<u>Grade</u>	N	Estimate	Lower Bound	Upper Bound	Estimate	Lower Bound	Upper Bound
9	4201	4.5%	3.6%	5.4%	5.7%	4.7%	6.7%
10	4689	5.6%	4.7%	6.5%	4.7%	3.8%	5.6%
11	4679	5.0%	4.1%	5.9%	6.1%	5.2%	7.1%
12	5030	4.7%	3.9%	5.5%	6.2%	5.3%	7.1%
All	18599	5.0%	4.5%	5.4%	5.7%	5.2%	6.2%

Other Tobacco Use

Although this chapter focuses primarily on smoking outcomes, for reference, changes over time in the prevalence of cigar and smokeless tobacco use in the last 30 days (not shown) were also examined and no overall significant increase was seen in either alternative form of tobacco (cigar use increase= 0.2%, SE = 0.6%, $p = 0.670$; smokeless use increase 0.3%, SE=0.4%, $t=0.82$, $p=0.41$) However, Whites decreased their cigar use by 1.9% (SE = 0.9%, $t=-2.03$, $p<0.049$) and decreased their smokeless tobacco use (1.1%, SE=0.5%, $t=-2.04$, $p<0.045$). Region 10 (El Dorado) showed a significant increase in both forms of tobacco, while use in grade and gender subgroups showed no significant increase over time.

Proximal- and Medium-distal Outcomes

These models examined the time trend in standardized proximal and medium-distal outcome measures, predicted by year, with grade, gender, ethnicity, region, and school enrollment size as covariates. As shown above, the sample was all grade cohorts (9-12) at each year at repeated high schools. Only changes in overall standardized scale scores over time were examined. Changes in these measures were not examined within demographic subgroups, primarily because of the lack of variability seen in current and frequent smoking outcome changes above.

The results are summarized in **Table 9.6**. In order to make meaningful comparisons across the various outcome measurements, the scales were standardized to a standard

deviation (SD) of one ($SD = 1$) prior to analysis. Therefore, values in Table 9.6 and beyond describe changes from 2005-2006 to 2007-2008 expressed in standard deviation units and were therefore comparable in terms of unit of measurement. Standard deviation scale changes on the order of 0.20 standard deviation units are often considered small but 'noticeable' in terms of observable social/psychological constructs (Cohen, 1988). In this sample, differences on the order of 0.04 SD units are statistically significant at a $p < 0.05$ levels. The practical meaningfulness of a difference of that magnitude is left to the reader to gauge. As a point of reference, the change over time in the smoking index measure was 0.003 SD units. The corresponding change in current smoking was 0.5 percentage point units.

We found that student intentions and reports of numbers of friends smoking did not change statistically over time, although student's perceptions of the number of students their age who are currently smoking did show a decrease on the order of 0.03 SD units ($SE = 0.033$, $p < 0.15$).

In regards to perceptions of social consequences, the level of belief in there being positive consequences of smoking (e.g., looking cool) fell significantly (-0.142 SD units, $SE = 0.017$, $p < 0.001$) A decrease in perceptions of positive social consequences of (adolescent) smoking is consistent, theoretically, with potential future decreases in the smoking.

The perceptions of negative health consequences (e.g., a belief that physical harm will result from smoking) also changed but in a direction consistent with increased future smoking, with a drop of -0.064 SD units ($SE = 0.021$, $p < 0.004$) in the scale between 2005-2006 and 2007-2008. The positive health outcome scale (e.g., smoking is a way to maintain body weight) was observed to increase slightly but not significantly (0.013 SD units, $SE = 0.020$, $p = 0.50$).

Anti- tobacco industry attitudes (e.g., industry tries to get people addicted) decreased over time by -0.116 units ($SE = 0.020$, $p = 0.001$) while the pro-industry attitude (e.g., willingness to wear a logo) remained fairly constant.

Table 9.6 Time trends for Proximal and Medium-distal Outcomes (Grade Cohorts)			
<u>Outcome</u>	Change Over Time	Standard Error	p-value
Smoking Index	0.003	0.021	0.986
Intention to Smoke	0.009	0.016	0.563
Smoking Prevalence Estimate	-0.033	0.022	0.153
Friends Smoking	0.018	0.019	0.369
Positive Social Consequences*	-0.142	0.017	0.001
Positive Health Consequences	0.013	0.020	0.503
Negative Health Consequences*	-0.064	0.021	0.004
Pro-Tobacco Industry Attitude	0.014	0.018	0.431
Anti-Tobacco Industry Attitude*	-0.116	0.020	0.001

Summary measures of school tobacco use prevention education program components and their stability over time

Identification of a School Implementation Index Based on Staff Reports

An array of tobacco use policy and practice measures as reported by school staff were defined in Chapter 7 (see Table 7.1 and Appendix Table A7.1). In this Chapter, the investigators constructed multi-item summary indices from these measures by standardizing the sum of the items listed in each of the six broad conceptual areas of school-based tobacco use prevention/intervention services: (1) no-tobacco use policies, (2) tobacco-related instruction, (3) school-wide anti-tobacco activities, (4) cessation activities, (5) parent involvement, and (6) governance/support. The summary measures used the reports of school tobacco use prevention coordinators and in the case of the instructional area, additional reports from the teachers who had taught tobacco lessons were used.

A Policy Index was comprised of the breadth of policy, enforcement of no-tobacco use policy, and the use of supportive policy items. An Instructional Index was comprised of tobacco use prevention lesson hours, use of published tobacco use prevention curricula, breadth of topics covered, use of novel teaching modalities, and tobacco use prevention education (TUPE) training items. An Activities Index was comprised of the number of in-school TUPE activities outside of the classroom. A Parent Involvement

Index was constructed from items measuring the extent of parent involvement in tobacco prevention activities. A Cessation Services Index consisted of the one item indicating the provision or referral of that service at school. And finally, the items referring to support from the district for tobacco related activities defined a District Support Index.

The above groupings were constructed largely on logical and theoretical bases and conformed to elements of best practice guidelines. The first five indices (all but the support index, which is regarded here as a program input in relation to the school) were further combined to form a Global School Implementation Index. This global index yielded a single dimension in an empirical factor analysis of this data and had a reliability coefficient of 0.73, both of which indicated that this index was comprised of a one-dimensional construct. Higher scores on the global index (and each of the sub indices) indicate more implementation of tobacco use prevention activities thought to directly affect proximal and medium-distal tobacco use-related outcomes.

Now, the stability of these indices was examined in the set of high schools surveyed twice over the two-year period. We present estimates controlling for school region, enrollment, and ethnic composition.

Tobacco Prevention Program Structure over time

Table 9.7 displays the changes over time, their standard errors, and p-values for statistical tests involving the five component and global implementation indices for all 48 sampled high schools combined. Changes in this table are expressed in standard deviation units and are therefore comparable across indices. Also shown is the measure of district support, which the investigators use as a measure of program input beyond the schools' control. Although all indices show a small decline in reported activities, none of the indices showed statistically significant change over the time period examined (all $p > 0.05$).

Table 9.7 Stability of School Activities Indices over Time

Component	Change Over Time	Standard Error	p-value
Policy Index	-0.20	0.21	0.33
Instructional Index	-0.16	0.20	0.41
Activities Index	-0.05	0.14	0.67
Parent Involvement Index	-0.01	0.14	0.99
Cessation Services Index	-0.08	0.19	0.65
Global Implementation Index	-0.13	0.14	0.38
District Support Index	-0.12	0.17	0.48

Note: Changes are measured in Standard Deviation units of the indices. School region, enrollment, and ethnic composition are used as covariates.

How TUPE Funding and District Support Related to School Implementation Indices

In Chapter 5 of this report, funding status was related cross-sectionally to individual measures of program activity from a variety of sources. In this section, that analysis was extended to examine the impact of TUPE funding on the summary implementation measures and further examined whether TUPE funding resulted in changes in TUPE implementation over time.

Using each activity Index as an outcome, we modeled activity and change in activity as a function of TUPE funding status, controlling for school region, enrollment, and ethnic composition. **Table 9.8** summarizes the results of this analysis. Values in the table are in standard deviation units and represent; (a) the average difference in the index between grantee and non-grantee schools at each time point (labeled as 'Index'), and (b) the average difference in change in index values over time between grantee and non-grantee schools (labeled as 'over time'). It is noted that even though the indices showed no change over time overall, it is still possible for grantee and non-grantee schools to differ in their change values.

The impact of funding on component indices was generally large and positive, with all but the Policy Index reaching statistical significance. The impact of TUPE funding on the Global Index was also statistically significant (0.66, SE = 0.23, $p < 0.01$). Although generally positive, none of the funding impacts on index changes over time were

significant. The results suggest that TUPE grantee schools started out at higher rates of implementation, and maintained or increased, slightly, their implementation level advantage.

Table 9.8 Effects of Funding on School Activities (Staff Reports)			
Output	Impact of Funding Status	Standard Error	p-value
Policy Index	0.27	0.26	0.29
Policy Index over Time	0.21	0.40	0.59
Instruction Index *	0.70	0.26	0.01
Instruction Index over time	0.58	0.36	0.12
Activities Index *	0.72	0.28	0.01
Activities Index over time	0.33	0.28	0.24
Parent Involvement*	0.57	0.26	0.03
Parent Involvement over time	0.07	0.30	0.80
Cessation Services *	0.85	0.26	0.01
Cessation Services over time	0.29	0.36	0.41
Global Implementation Index *	0.93	0.24	0.01
Global Index over time	0.15	0.30	0.61
District Support *	0.59	0.32	0.03
District Support over time	0.34	0.036	0.34

Notes: Shaded rows are for relationships examined over the interval 2005-2006 to 2007-2008.

Region, enrollment, and ethnic composition are used as covariates.

* = $p < 0.05$

The impact of TUPE funding on the level and potential change in perceived district support was also examined (Table 9.8). The results demonstrated that the perception of district support was associated with TUPE funding at each time point. That perception tended to increase somewhat in the grantees (and decrease in non-grantees based on the overall trend of -0.12 seen in Table 9.7) but that impact was not statistically significant.

Next, district support was considered as an input to implementation activity, that is, implementation indices (and their changes over time) were examined as a function of district support. **Table 9.9** shows the result for the average associations at each time point. As might be expected, district support was positively related to all of the implementation indices, with more support associated with increased TUPE activity.

However, only policy and activities indices, and the overall index, reached statistical significance. There was no impact of support on changes in indices over time (values not shown).

Table 9.9 Effect of District Support on Activities			
Activity	Impact of District Support on Activities	Standard Error	p-value
Policy Index *	0.28	0.11	0.01
Instruction Index	0.19	0.08	0.12
Activities Index *	0.32	0.09	0.01
Parent Involvement	0.17	0.10	0.11
Cessation Services	0.12	0.14	0.41
Global Implementation Index*	0.30	0.10	0.01

Notes: Region, enrollment, and ethnic composition are used as covariates.
* = p<0.05

The lack of overall change in implementation over time limited the ability to detect TUPE funding status or District support as causal pathways for implementation change.

Consistent associations were found between these inputs and implementation outputs at each time point. It is noted that the grantee schools in this sample have had TUPE funding for an average of 114 months (9 and 1/2 years). Given this, the fact that they had higher levels of activity is both satisfying and not surprising. Similarly, the fact that neither grantee nor non-grantee schools changed their levels of TUPE activity in the absence of any impetus to do so (i.e., changes in their funding or programmatic initiatives) was also not surprising.

Because TUPE funding status was related to perceived district support, which in turn was related to levels of school activities, it is logical to assume that district support is one mechanism of action by which TUPE funding affects TUPE practice.

Relationship of TUPE Implementation to Changes in Knowledge, Attitudes, and Behavior (Birth Cohort Sample)

This section examines how the school-based activities index constructed above influenced changes in student tobacco use and the precursors to student tobacco use

over the two-year period. The sample was restricted to those students in the birth cohorts at each school. Because the birth cohort had aged over the two-year interval, tobacco use and its precursors were expected to have increased. **Table 9.10** displays the changes over time in the tobacco use-related outcomes.

Table 9.10 Time Trends in Tobacco Use and its Precursors (Birth Cohort Sample)			
Outcomes	Change in Outcome over Time*	Standard Error	p-value
Smoking Index	0.198	0.020	0.001
Intention to Smoke	0.127	0.020	0.001
Friends Smoking	0.108	0.019	0.001
Smoking Prevalence	0.176	0.019	0.001
Positive Social	-0.079	0.020	0.001
Positive Health	0.017	0.020	0.392
Negative Health	0.148	0.020	0.001
Pro-Tobacco Industry	0.067	0.020	0.001
Anti-Tobacco Industry	0.165	0.019	0.001

Note: Values are the average change in outcome index values as students moved between grades 9/10 to grades 11/12.

* Gamma one-zero (γ_{10}) in Equation 2

As expected, indices of smoking, intention to smoke, and number of friends smoking increased in each birth cohort as the cohort aged. Student estimates of peer smoking also increased in correspondence with the actual increases in the prevalence of smoking by students of their age.

Among the tobacco use-related attitude and belief indices, there were significant decreases in beliefs that there are positive social consequences of smoking (-0.079, SE = 0.020, $p < 0.001$). There was a significant increase in the belief that smoking had negative health consequences, and no change in the belief that smoking has positive health value (e.g., as a weight control strategy). Both pro- and anti- attitudes toward the tobacco industry increased slightly in this group of students as they aged.

Next, the impact of exposure to school-based prevention programs (as reflected in the global implementation index), on the changes in tobacco use-related attitudes and

smoking behaviors is examined. **Table 9.11** displays the results of the hierarchical linear modeling of changes in proximal and medium-distal outcomes as a function of the global implementation index.

Table 9.11 Effects of School Program Implementation Activity on Tobacco Use and its Precursors				
Outcome	Baseline Effect of Activity on the Outcome*	p-value of Baseline Effect	Impact of Activity on changes in outcome+	p-value of Change
Smoking Index	0.013 (0.019)	0.486	-0.061 (0.023)	0.008
Intention to Smoke	0.006 (0.019)	0.734	-0.027 (0.022)	0.228
Friends Smoking ++	0.038 (0.019)	0.046	-0.077 (0.022)	0.001
Smoking Prevalence Estimate	0.038 (0.020)	0.063	- 0.034 (0.022)	0.127
Positive Social Consequences	0.020 (0.019)	0.299	-0.020 (0.023)	0.368
Negative Social Consequences	0.011 (0.018)	0.522	0.009 (0.022)	0.672
Positive Health Consequences	-0.011 (0.020)	0.572	0.010(0.023)	0.646
Negative Health Consequences	-0.028 (0.018)	0.134	0.031 (0.022)	0.170
Pro-Tobacco Industry Attitude ++	0.013 (0.019)	0.486	-0.061 (0.023)	0.008
Anti-Tobacco Industry Attitude	0.003 (0.019)	0.872	0.026 (0.022)	0.236

Note: Values are the effect of a one unit change in the predictor.
 Values in parentheses are standard errors of the estimates.
 Activity is measured as a global Implementation index

* Gamma zero-one (γ_{01}) in Equation 3 and 4

+ Gamma one-one (γ_{11}) in Equation 2 and 4

++ = $p < 0.05$

The level of TUPE implementation at each school was found to affect changes in the measures of proximal and medium-distal outcomes. The growth in the smoking index as these students moved between the 9th or 10th grade to the 11th or 12th grade was found to be reduced by an average of 0.061 SD units (SE = 0.023, $p=0.008$) for every one standard deviation (SD) unit increase in the global Implementation index. The change in

the reported number of friends smoking decreased, by 0.077 SD units (SE = 0.022. $p=0.001$) for each one SD unit change in TUPE implementation.

Somewhat surprisingly, the growth in the other precursors of smoking examined here appeared to be unaffected by exposure to school TUPE activities as measured by the global implementation index. These relationships were also explored using component indices and the overall summary measures presented here were found to accurately reflect what the component findings would have shown if they were reported.

Assuming that the intent of school-based tobacco use prevention programs is to effect changes in the way students develop and maintain attitudes and beliefs that discourage smoking, these results suggest that either 1) these “precursor” attitudes and beliefs do not affect the growth of smoking behavior, or 2) that the implementation of school-based tobacco use prevention education (TUPE) programs is correlated with other environmental factors that do impact that growth. The next two sections will examine these two possibilities.

How smoking-related knowledge, attitudes, and behavioral outcomes relate to each other as students mature over time

This section explores the relationships between proximal outcomes assumed to be precursors to smoking with the measured changes in smoking prevalence. This section uses the same birth cohort sample as was used in the previous section, and the same general analytic strategy, except that proximal outcomes were used to predict changes in smoking prevalence rather than exposure to prevention programs.

Intentions to smoke were associated with smoking at each time point and did predict changes in smoking behavior (in the expected direction) as measured by the smoking index. Other intermediate outcome measures, number of friends smoking and estimates of student smoking, had high baseline cross-sectional associations with the smoking Index, but did not appear to predict changes in smoking across the two-year interval.

Each attitudinal and belief scale was strongly associated with the smoking index cross-sectionally at baseline, but only the positive social consequence scale appeared to be predictive of **changes** in smoking, with greater belief in smoking having a positive social benefit (i.e., looking cool) predicting greater increases in prevalence of smoking behaviors.

Table 9.12 Effects of Proximal and Medium-distal Outcomes on the Smoking Index				
<u>Predictor</u>	Baseline Effect of Predictor on Smoking Index*	p-value of Baseline Effect	Impact of Predictor on Changes in Smoking⁺	p-value of Change
Intention to Smoke	0.665 (0.011)	0.001	0.090 (0.014)	0.001
Friends Smoking	0.479 (0.013)	0.001	0.014 (0.018)	0.433
Smoking Prevalence Estimate	0.264 (0.014)	0.001	- 0.011 (0.020)	0.564
Positive Social Consequences	0.278 (0.014)	0.001	0.084 (0.019)	0.001
Positive Health Consequences	0.109 (0.014)	0.001	0.008 (0.020)	0.853
Negative Health Consequences	-0.292 (0.014)	0.001	-0.012 (0.020)	0.538
Pro-Tobacco Industry Attitude	0.350 (0.014)	0.001	0.006 (0.020)	0.753
Anti-Tobacco Industry Attitude	-0.138 (0.015)	0.001	-0.008 (0.020)	0.675

Note: Values are the effect of a one unit change in the predictor.

Note: Values in parentheses are standard errors of the estimates.

* Gamma zero-one (γ_{01}) in Equation 3 and 4

⁺ Gamma one-one (γ_{11}) in Equation 2 and 4

What is the relative strength of school TUPE activities compared to the influence of external factors for predicting prevalence of student tobacco use?

This section examines other non-school anti-tobacco activities and demographic contextual factors that may be predictive of the increase in the birth cohorts' smoking over time. The impact of these factors on smoking relative to the impact of school TUPE activities is also examined. Within the birth cohort sample, school TUPE activities were observed to predict changes in the prevalence of student tobacco use but were not predictive of changes in such expected precursors as perceived negative health

consequences of tobacco use and anti-tobacco industry attitudes. Therefore, this analysis further addresses the possibility that contextual factors were the underlying cause of the relationship observed between school TUPE activities and student tobacco use prevalence.

Measures

A school-level Index of Community Anti-tobacco Activity was constructed by taking the mean of the student reports at each school regarding their participation in or awareness of community tobacco control activities, police enforcement of restrictions on tobacco sales to minors, and on tobacco product possession by minors. The scale was standardized and scaled such that higher scores indicated that a larger proportion of the students at the school were aware of community tobacco control activities.

A school-level Index of Exposure to Anti-tobacco Use Messages in various communication media was also constructed. The school mean of student reports of exposure to anti-tobacco messages on radio, TV, or outdoor media was standardized such that higher values indicated more student exposure to anti-tobacco use media messages at that school.

School level contextual factors were derived from the California Basic Education Data and Statistics (CBEDS) data and included the school size (school enrollment size), the average achievement test scores for the school (API), the percentage of students eligible for government-subsidized school meals, and the average formal educational attainment of the parents of students at the school.

These school-level indicators were then used to predict changes in the smoking index as was done with the school TUPE activities index. Because the scales were standardized to the same measurement scale (standard deviation units), the relative sizes of the model coefficients reflect the relative contributions of each factor to the prediction of student tobacco use prevalence. The school Global Implementation Index

was then re-examined as a predictor of student tobacco use in the context of these other factors.

Results

Table 9.13 provides the results of the hierarchical linear models predicting the smoking index, both cross-sectionally at baseline and as predictors of changes in smoking. The Community Programs Index was associated with smoking cross-sectionally (-0.50, SE =0.015, $p<0.01$) but not with changes in smoking. The Anti-tobacco Media Messages Index was also related to smoking at either time point (0.044, SE=0.015, $p=0.003$) but not with changes in youth smoking.

Regarding school demographic factors, none of the factors examined were reliably associated with school smoking in this sample. The school TUPE Activities Index alone had a statistically significant coefficient of -0.062 ($p = 0.007$) for predicting changes in the prevalence of student smoking over time. When the contextual factors listed in Table 9.13 were included in the model, that coefficient was -0.064, which was still statistically significant ($p=0.010$) and is suggestive of a benefit of TUPE implementation on reducing student smoking. This would indicate that these contextual factors do not confound the observed relationship of school TUPE activities to changes in the prevalence of student smoking within the birth cohort sample.

Table 9.13 Effects of External Factors on the Smoking Index

Predictor	Baseline Effect on Smoking Index*	p-value of Baseline Effect	Impact of predictor on Changes in Smoking ⁺	p-value change
Community Programs	-0.050(0.015)	0.001	0.010 (0.021)	0.634
Anti-media	0.044 (0.015)	0.003	0.004 (0.020)	0.835
Enrollment	-0.004 (0.023)	0.190	0.024 (0.020)	0.400
Parent Education	-0.011 (0.032)	0.720	0.011 (0.029)	0.696
API Scores	-0.001 (0.001)	0.101	0.000 (0.001)	0.715
Percent Meal Assistance	0.001 (0.001)	0.151	-0.001 (0.001)	0.210
School TUPE Index (alone)	0.013 (0.019)	0.485	-0.062 (0.023)	0.007
School TUPE index (adjusted for other predictors listed above)	0.014(0.022)	0.522	-0.064(0.024)	0.010

Note: Values in parentheses are standard errors of the estimates.

Note: Parent education correlated $r = 0.58$ with API score and $r = -0.78$ with Percent Meal Assistance.

Note: TUPE is "Tobacco Use Prevention Education"

* Gamma zero-one in Equation 3 and 4

* Gamma one-one in Equation 2 and 4

Grade Cohort Design Analysis of Schools Measured At 3 Time Points

As a final examination of the potential impact of TUPE programming, we now present a grade cohort design analysis examining the impact of school policies and practices on student tobacco use outcomes using data from schools which have participated in three time points of data collection: 2003-4, 2005-6 and 2007-8. Using the same basic analytic strategy as earlier in this chapter, this analysis examines the high school tobacco use index as computed over all students (grades 9-12) at each school in each year and tests for associations over time between trends in that index and various measures of school level TUPE activity.

Sample

Forty-eight schools (74 percent) out of the sixty-five originally surveyed in 2003-2004 also participated in the IETP in 2005-2006 and 2007-2008. A total of 23,544 student

surveys were collected - 5283 in 03-04, 9077 in 05-06, and 9184 in 07-08 – which comprised 83% of the 28,283 surveys collected across all 65 schools that participated at any of the three time points. There were no statistical differences between the student characteristics of the 48 schools participating in all three waves of collection and those with fewer than three waves. Forty-one percent of the students in the 3-wave sample were Hispanic, 38% were White, 10% were Asian, 5% were Black, and 6% were of other races. Forty-nine percent of the 3-wave students were males and students were distributed approximately equally across grades. As in earlier analyses, we weighted surveys such that each school, and each grade within a school, had equal computational weight in the analysis and school enrollment was used as a covariate in association models.

Measures

We use the same standardized indices as defined earlier in the chapter - the smoking index, the school TUPE activity index, a community programs TUPE activities index, and an anti-tobacco media activities index. We used as control measures of school context, the school size (enrollment) and a new composite index comprised of the average of the parent education, percentage of students on meal assistance, and the average API scores at each school. At the individual level, we controlled for gender, grade, and race/ethnicity in all models.

Results

Time trends in Smoking and tobacco use prevention activities.

Over the time interval examined, the tobacco use index increased an average of 0.122 standard deviation units per year ($SE=0.006$, $p=0.048$) indicating that overall, the tobacco use trend was increasing at this set of schools. Correspondingly, across all schools, the school TUPE activities index was decreasing (-0.0106 std units per year, $se=0.040$, $p=0.011$).

As was seen in prior analysis, the school TUPE activities index in this set of schools was highly associated with TUPE funding status, with funded schools having 0.76 ($se=0.27$, $p=0.008$) standard deviation units more TUPE activities than those without

funding. We note however that over time, TUPE activities in non-funded schools trended downward (-0.18 std units per year, se=0.06, p=0.008) while those at funded schools remained relatively stable (-0.051 std units per year, se=0.09, p=0.15).

Associations between school TUPE activities and tobacco use.

Table 9.14 shows the result of the associational models predicting the tobacco use index at baseline and the trends in this index over the period 2003-4 through 2007-8. The TUPE activities index was not associated ($p < 0.05$) with tobacco use at baseline (2003-4) indicating that these high schools started at comparable levels of tobacco use across their initial levels of programmatic activity at the school. However, those schools with higher levels of TUPE activity tended to show a significantly lower rate of increasing trend in the changes of tobacco use over time, -0.014 standard deviation units less for those schools above the average in TUPE activities compared to those at lower levels of TUPE activities.

Table 9.14 Effects of External Factors on the Smoking Index				
Predictor	Baseline Effect on Smoking Index *	p-value of Baseline Effect	Impact of predictor on Changes in Smoking⁺	p-value change
School TUPE Index	0.004 (0.015)	0.79	-0.014 (0.006)	0.039
Community Programs	-0.047(0.006)	0.001	0.004 (0.021)	0.634
Anti-tobacco media	0.031 (0.010)	0.003	0.003 (0.006)	0.574
Enrollment	-0.032 (0.019)	0.110	0.001 (0.004)	0.998
School Context**	-0.038 (0.021)	0.081	0.010 (0.006)	0.098
School TUPE index (adjusted for other predictors listed above)	0.005 (0.015)	0.712	-0.013(0.006)	0.049

Note: Values are the effect of a one unit change in the predictor.
 Values in parentheses are standard errors of the estimates.
 School TUPE Activity Index is measured as a global Implementation index
 Region, enrollment, grade, gender and ethnic composition are used as covariates.
 * Gamma zero-one (γ_{01}) in Equation 3 and 4
 + Gamma one-one (γ_{11}) in Equation 2 and 4
 **Average of parent education, API scores, and percent meal assistance at each school.

Community programs and anti-tobacco media did show an association with baseline tobacco use but not with trends over time. The contextual factors of school size and the composite of API scores, meal assistance, and parent educational attainment did not show significant associations with either the baseline tobacco use or time trends in tobacco use. Not surprisingly then, the effect of the school TUPE activities index was not reduced (explained) by these school contextual factors and remained statistically significant in a model with all factors included.

Summary

The results of the school and birth cohort analyses using data collected twice from the same high schools in 2005-2006 and 2007-2008 largely confirmed the results obtained from the cross-sectional data collected in 2007-2008. The cohort analysis confirmed that high school student tobacco use remained relatively stable over the two-year period, including cigar and smokeless tobacco use.

Student pro-smoking attitudes, beliefs, and social environments (intent to smoke, belief of more smoking peers) remained stable, while anti-smoking health beliefs and beliefs about the positive social consequences of tobacco use decreased over the two-year period. There were changes in student attitudes in both a positive and negative direction about the tobacco industry over the period: 2005-6 through 2007-8.

There was little evidence of overall change in the type and level of school TUPE implementation between the 2005-2006 and 2007-2008 academic years. TUPE-funded high schools reported consistently higher levels and quality of tobacco prevention-related activities compared to non-grantee schools at each time point. These TUPE-funded implementation advantages appeared to be mediated through perceived district-level support for TUPE activities, which, in turn, was associated with school TUPE funding status.

The longitudinal evidence suggests that the number of school-level tobacco prevention activities was associated with changes in student tobacco use and intentions, but not with the hypothesized medium-distal tobacco use precursors such as student estimates of the number of peers who use tobacco or the number of friends who use tobacco. Among the precursors to smoking, only student-reported intention to smoke and students' perception that positive social outcomes could be expected from tobacco use were predictive of school-level changes in smoking between 2005-2006 and 2007-2008.

School contextual factors were not found to be strong predictors of changes in the prevalence of student tobacco use. It was concluded that the association of school TUPE activities with changes in student smoking could not be explained by contextual factors.

The pattern of findings for results based on three assessments (2003-4, 2005-6, 2007-8) largely replicated the pattern described for the most recent two-assessment comparison: 2005-2006 versus 2007-2008. In particular, state TUPE funding was related to increases in TUPE activities, which, in turn, were related to decreased student tobacco use. This relationship is not explained by other contextual factors and confirms a near-significant pattern observed over the period: 2003-4 through 2005-6. (Park et al., 2010)

Appendix Table A9.1 Items Used in the Analysis (Student Survey)

<u>Domain</u> (Cronbach's Alpha)	<u>Question Number</u> (Q)	<u>Question</u>
Positive Social Consequences of smoking (0.59)	<u>Q35</u>	Do you think young people who smoke cigarettes have more friends?
Add items numbered : 86 87 88	<u>Q36</u>	Do you think smoking cigarettes makes young people look cool or fit in?
Negative Health Consequences from smoking (0.54)	<u>Q37</u>	Do you think young people risk harming themselves if they smoke from 1 to 5 cigarettes per day?
Add items numbered : 85, 89, 90, 92, 95	<u>Q38</u>	Do you think it is safe to smoke for only a year or two, as long as you quit after that?
	<u>Q51</u>	Do you think the smoke from other people's cigarettes is harmful to you?
	<u>Q96</u>	People can get addicted to using tobacco just like

Appendix Table A9.1 Items Used in the Analysis (Student Survey)

<u>Domain</u> <u>(Cronbach's Alpha)</u>	<u>Question</u> <u>Number</u> <u>(Q)</u>	<u>Question</u>
		they can get addicted to using other drugs such as cocaine or heroin.
Positive Health Consequences of Smoking	<u>Q83</u>	Smoking cigarettes helps keep a young person from gaining too much weight.
Anti-tobacco industry attitudes (0.64)	<u>Q72</u>	Do you think that tobacco companies try to get people addicted to cigarettes?
	<u>Q73*</u>	Tobacco companies would stop selling cigarettes if they knew for sure that smoking hurts people.
	<u>Q74</u>	Tobacco companies try to get young people to start smoking by using advertisements that are attractive to young people.
Pro-tobacco industry attitudes (0.xx)	<u>Q47</u>	Would you ever use or wear something that has a tobacco company name on it?
	<u>Q46</u>	During the past 12 months, did you buy or receive anything that has a tobacco company name on it?
Media Exposure (school means)		
Anti-Tobacco Media Exposure (0.xx)	<u>Q67</u>	When you listen to the radio, how often do you hear advertisements about NOT smoking or about NOT chewing tobacco?
Add Q44	<u>Q68</u>	When you see billboards (outdoor signs), how often do you see advertisements about NOT smoking or about NOT chewing tobacco?
	<u>Q69</u>	When you watch TV, how often do you see stories or advertisements about the dangers of smoking tobacco or chewing tobacco?
	<u>Q44</u>	During the past 30 days, have you seen or heard commercials on TV, the internet ...
Pro-Tobacco Media Exposure (0.xx)	<u>Q45</u>	When you watch TV or go to the movies, how often do you see actors using tobacco?
	<u>Q70</u>	When you go to sports events, fairs or community events, how often do you see advertisements for cigarettes or chewing tobacco?
Community Anti-tobacco Activity Exposure (school mean)	<u>Q75</u>	
	<u>Q76</u>	
	<u>Q77 b-f</u>	
Smoking Norms Prevalence Estimation	<u>Q54</u>	About what percent of students in your grade have smoked cigarettes?
Intent	<u>Q32</u>	
	<u>Q33</u>	

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CHAPTER 10: CONCLUSIONS AND RECOMMENDATIONS

This evaluation focused on four broad cross-sectional research questions regarding youth tobacco use and prevention in California. Responses to these four questions were obtained from students attending 152 schools participating in the 2007-2008 IETP. Two additional broad questions asked of the 48-school longitudinal cohort. These six questions included:

Cross-sectional study questions

1. What is the prevalence of tobacco-related behavior, attitudes, and knowledge and awareness about tobacco and tobacco use prevention among California students and how do they compare to national rates?
2. What types of school-based tobacco prevention and intervention policies and practices are being implemented in California schools and to what level and consistency are they being implemented?
3. Is program exposure associated with lower levels of student tobacco use and lower levels of factors known to be precursors to tobacco use (e.g., pro-smoking attitudes)?
4. What are the contextual influences, such as the degree of support from district administrators, for teaching TUPE lessons that need to be taken into account when designing more effective school-based TUPE programs? Is TUPE funding an important contextual influence?

Longitudinal cohort study questions

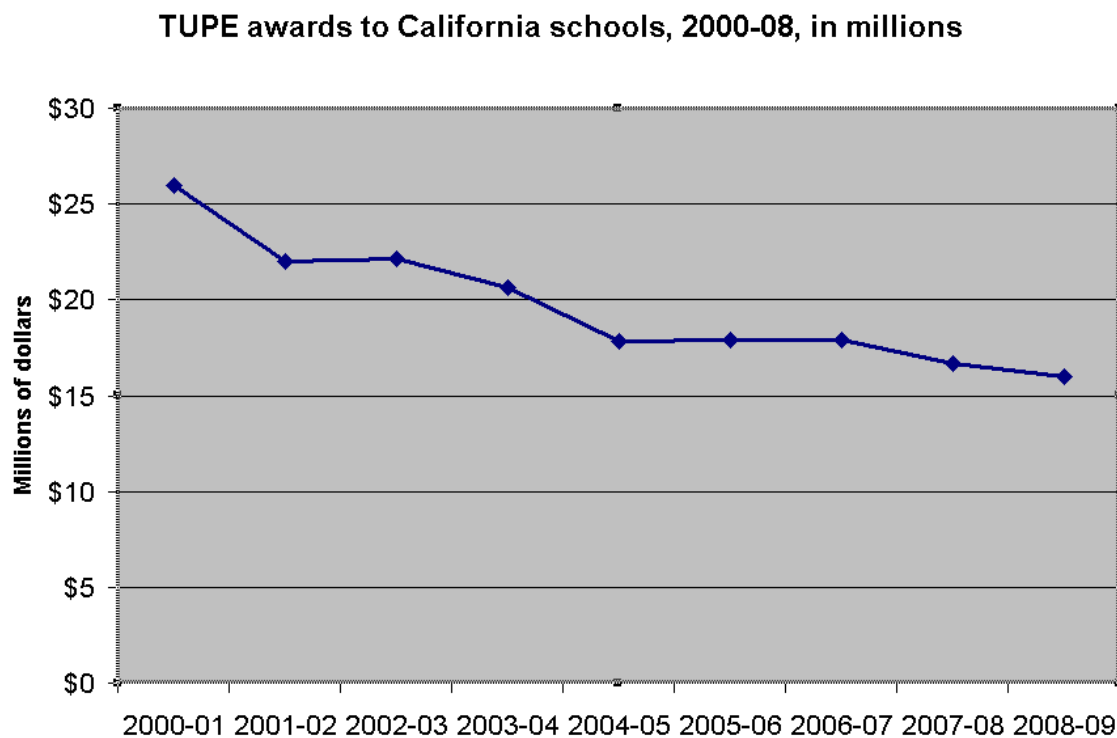
1. Is TUPE funding helpful to high schools in stimulating desirable changes in student attitudes and behaviors with respect to tobacco use?

2. Were documented changes in TUPE resources related to student tobacco use outcomes?

The **foregoing** chapters have reviewed 2007-08 tobacco use patterns observed in California in-school youth and related this epidemiological information to school district staff information about TUPE-funded activities conducted in the recent past. Both school-level and district-level influences on students' rates of tobacco use were examined, although the focus was on the school-level information.

This evaluation of tobacco use by California in-school youth must, of course, be understood in the context of the larger backdrop of tobacco use prevention education occurring at the community, state, and national levels and of recent implementation of new tobacco-related public policies. A demonstrably beneficial statewide policy change was the 80 percent rise in the price of cigarettes observed between 1999 and 2004. (Farrelly and Bray 1998) This price rise occurred as a result of a 1999 rise of 50¢ in the state tobacco excise tax and by accompanying tobacco industry price increases (reviewed in Rohrbach et al., 2002(Rohrbach, Howard-Pitney et al. 2002)). All ages and ethnic groups reduce tobacco use as prices of tobacco products rise, but younger adolescents and African Americans are the most responsive (e.g., Chaloupka and Pacula, 1999(Chaloupka and Pacula 1999)). On the downside, investment by the State of California in tobacco use prevention has been declining. Figure 1 shows the dollar amounts spent on school-based interventions since 2000. Figure 2 shows the per capita amounts, reflecting changes in the size of California's student population.

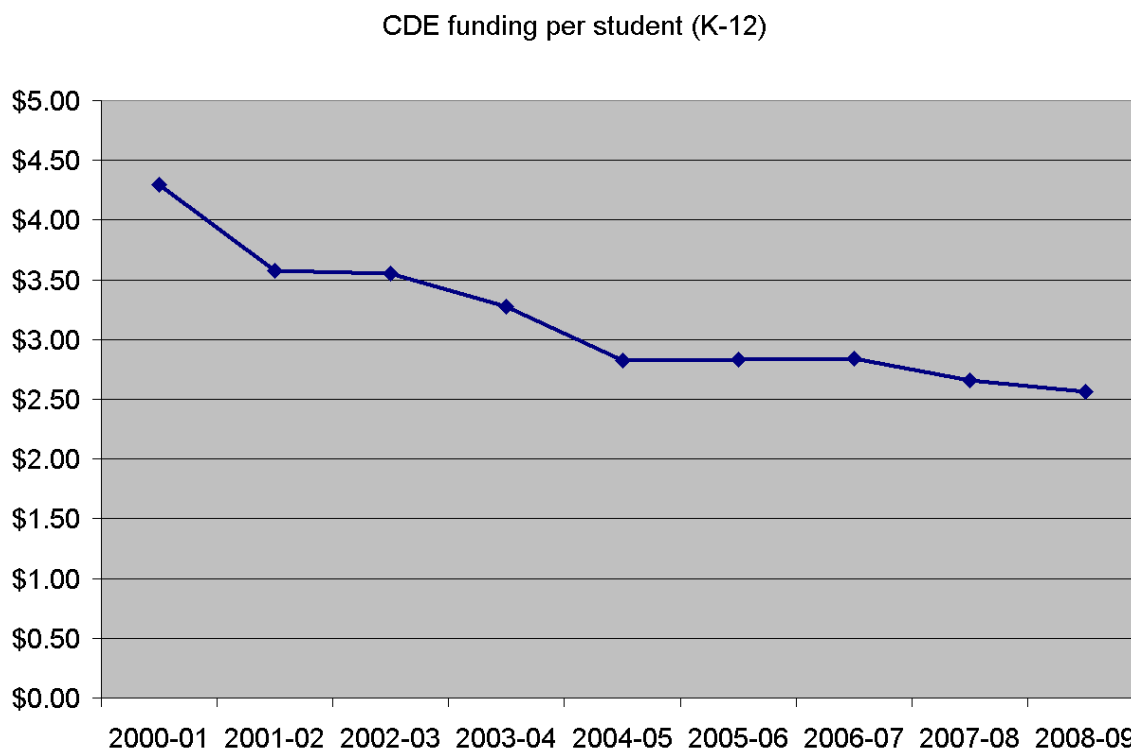
Figure 1: California Department of Education TUPE funding from 2000 through 2008



*Note. Data on California TUPE funding from:

<http://www.cde.ca.gov/ls/he/at/tupefunding.asp>

Figure 2: California Department of Education funding per student



*Note. The CDC (2007) recommended the following level of funding for School TUPE Programs: \$500,000-\$750,000 (statewide training and infrastructure) + \$4-\$6 per student (K-12)

*Note. Data on California TUPE funding from:

<http://www.cde.ca.gov/ls/he/at/tupefunding.asp> and data from California K-12 enrollment from: www.ed-data.k12.ca.us.

California Student Tobacco Use Stopped Declining

The observed student tobacco use prevalence rates reported here reflect the complex survey design used to collect the data and were cross-validated against the rates observed in a parallel random sample survey conducted in the same population during the same time interval. These rates were compared to the 2001-02, 2003-04, 2005-06, and 2007-08 IETP rates obtained using a very similar instrument and similar methods as those employed here. The rates were also compared to sets of California youth smoking prevalence rates obtained periodically since 1995-96 (Rohrbach, Howard-

Pitney et al. 2002). These rates were also compared to corresponding rates observed in randomly-sampled in-school youth across the U.S. (Johnston, O'Malley et al. 2008) After years of decline, the prevalence of current tobacco use (cigarettes, smokeless, cigar use) among California youth has plateaued even as U.S. youth prevalence continues to decline. (Johnston, O'Malley et al. 2008) The result is that the historically lower youth tobacco use rates in California are now converging with corresponding national rates. If current trends continue, California youth tobacco use rates will be no different from corresponding national youth rates. Beliefs and attitudes reported by California youth, relative to the beliefs of U.S. students, are now less strongly anti-tobacco than they once were, reinforcing the perception that tobacco use prevention in California is slipping relative to tobacco use prevention in other states. The overall response to cross-sectional question #1 is, therefore, that California in-school youth are no longer better-protected than national in-school youth against most forms of tobacco use.

Program Implementation and Linkages to Student Outcomes: Some Good Results with Future Cautions

Teachers continue to include multiple approaches to tobacco use prevention (such as social causes of tobacco use and social consequences of tobacco use in addition to physical health effects) and nearly all were using at least one science-based program. District staff tended to report a higher frequency of adherence to federal guidelines (e.g. instruction on various effects of tobacco use, not just physical consequences; using developmentally appropriate, science-based published curricula; involving parents and families) than was reported by other school staff.

Both quantitative and qualitative data gathered during interviews, with a subset of district coordinators, indicated that districts were using non-TUPE resources such as Title IV Safe and Drug Free Schools to augment the TUPE Program. There was also an indication that lack of consistent funding levels presented challenges in planning and

implementing the TUPE program with all populations (universal, most-at-risk, current users, and pregnant teens).

Teachers in both middle schools and high schools reported large increases in student access to on-campus tobacco use cessation resources relative to rates reported in 2005-2006. This was not accompanied by increased referrals of student smokers to the state's 800-NO-BUTTS cessation helpline, however, in part because nearly half of TUPE-trained high school teachers reported being unaware that the state's helpline was available to student smokers.

Qualitative data suggest that the science-based programs are not well-suited for older students (high school) and teachers indicated that while they taught all of the lessons, they had to modify them to be more relevant to students in grades 9-12.

School TUPE coordinators and teachers reported that significant barriers, including funding for substitute coverage, interfere with providing professional development and program-specific training for new teachers already overburdened with high-pressure demands to meet state education standards and boost their students' academic achievement. They also reported needing more support after they had been trained to teach about tobacco use prevention.

Results from chapters 5, 7, 8, and 9 suggested that TUPE funding was helpful, equipping school TUPE awardees with more TUPE activities, better trained teachers, greater use of science-based curricula and lower student tobacco use rates. More specifically, high schools with competitive TUPE grants were three times more likely than non-grantee high schools to offer cessation services and referrals to students, less likely to resort to expulsion for smoking, and more likely to sponsor school-wide anti-tobacco activities. High schools with competitive TUPE grants were more likely to cover smoking cessation and cigar use as part of TUPE lesson plans than non-grantee high schools.

Teachers, coordinators, and administrators in grantee high schools were all more likely than their counterparts in non-grantee high schools to report that their school sponsored a special day where students and staff were encouraged to abstain from smoking, held an anti-tobacco assembly, and sponsored an anti-tobacco club. According to high school staff, grantee schools provided one or two more school-wide tobacco prevention activities per year, on average, than non-grantee schools. High schools with competitive TUPE grants were more likely to use a published TUPE curriculum than non-grantee high schools.

Teachers in grantee high schools reported substantially higher levels of preparedness to teach tobacco use prevention lessons than their counterparts in non-grantee schools. Coordinators in grantee high schools were more likely than their counterparts in non-grantee high schools to report participating in professional training on “Youth development training,” “Science-based prevention training,” “Readiness to quit training,” and “Cessation programs.”

Students attending high schools with competitive TUPE grants were more likely to report higher levels of exposure to tobacco prevention education services than students in non-grantee schools. More high school students in grantee than in non-grantee schools reported that they had school lessons about tobacco, that a guest speaker talked to their class about not using tobacco, that they attended a school assembly about the harmful effects of tobacco use, that peer cessation training was available, and that cessation classes existed on campus.

Impact of TUPE on program outputs and student intermediate outcomes

The relationships between adult-reported school-level tobacco prevention practices and policies with students' reported TUPE program exposure were consistently stronger in TUPE grant-funded schools than in non-grantee schools. School district support for implementation of tobacco prevention lessons and school-wide anti-tobacco activities

were associated with higher likelihood of students having received tobacco-related information and reporting that they found such information useful.

Teacher, coordinator, and administrator reports of availability of cessation programs at schools were positively associated with student awareness of cessation services, particularly in TUPE grant-funded schools. Associations between adult-reported school-level tobacco prevention practices and policies with students' reported TUPE program exposure were more often observed in TUPE grant-funded schools than in non-grantee schools. Students in TUPE grant-funded schools were more likely to receive TUPE information in specific content areas, such as why people smoke, the physical harmfulness of smoking and exposure to cessation classes.

Teachers with a past experience in teaching TUPE lessons and with more hours of TUPE instruction were more likely to have students reporting having learned tobacco lessons, about smoking prevalence, and having obtained refusal skills training than teachers without such experience. Teachers who used a published, science-based curriculum were more likely to have students reporting having been taught why people smoke, about smoking prevalence, physical harmfulness of smoking, and obtaining refusal skills training. Teacher TUPE training and especially teacher preparedness to teach tobacco prevention lessons were positively associated with students' reported exposure to TUPE-related information. Use of non-traditional teaching strategies, notably small group discussions and role-playing, were associated with impact on student knowledge of why people smoke, information about the physical harmfulness of smoking, and exposure to refusal skills training.

Impact of TUPE on student tobacco use outcomes

There was consistent evidence that student tobacco use outcomes were improved when teachers reported higher levels of district expectation that they teach TUPE lessons. In TUPE grant-funded schools but not in non-grantee schools, some adult reports of punitive school policies towards student violators of the school's no-use policy

were associated with decreased prevalence of tobacco use outcomes. Total teacher TUPE instruction time was negatively associated with students' estimates of peer cigarette use; it was positively associated with an intent to not smoke in the future and with belief in the negative social consequences of smoking. The teachers' choice of topics to cover in the TUPE curriculum appeared to be associated with student tobacco use outcomes. Such topics included: effects of tobacco on physical health, secondhand smoke, prevalence of smoking among students, and refusal skills. Use of a published curriculum was associated with decreased lifetime and current student tobacco use and increased likelihood of students reporting their intent not to smoke as well as several protective anti-tobacco sentiments. Evaluation question #4 can therefore be answered affirmatively, that TUPE funding is an important contextual influence on program outputs, and on student intermediate and long-term outcomes. Evaluation question #3 can also be answered affirmatively, that exposure to TUPE programs was associated with desirable decreases in student endorsement of pro-smoking attitudes and with reduced risk of tobacco use.

Results from the 3-wave longitudinal cohort study reported in Chapter 9 showed that TUPE-funded grantee high schools reported higher levels and quality of tobacco intervention-related activities compared to non-grantee schools at each time point. These TUPE-funded implementation advantages appeared to be mediated through district-level support for these activities, which was itself directly associated with TUPE funding status. Evidence suggests that school-level TUPE activities were associated with changes in student tobacco use and intentions. Among the precursors to smoking, only smoking intentions and positive social outcome expectancies were predictive of changes in smoking, however. The pattern of findings for results based on three assessments largely replicated the pattern described for the most recent two-assessment comparison. The answer to the two longitudinal cohort study questions is therefore, “yes,” TUPE funding did help increase school tobacco use prevention education activities and did increase students' beliefs and intentions with respect to the benefits of avoiding tobacco use, and “yes,” TUPE funding was associated with greater

school success in reducing student tobacco use compared to schools not receiving TUPE funding.

Recommendations

Specific to the potential for schools to influence student tobacco use, the findings reviewed in Chapters 4, 5, 6, 7, 8, and 9 suggest the following recommendations: (1) Continue to fund school districts at current or higher per capita funding to implement TUPE programs at their schools; and (2) Use federal resources (e.g., drug free school funds), voluntary health organization resources (e.g., ACS Great American Smokeout), community resources (e.g., County law enforcement drug prevention efforts) to augment whatever TUPE resources are still available from the State to fund TUPE programs. There is little near-term prospect that state TUPE funds will increase, so these alternative sources may be better bets for augmenting schools' TUPE resources.

The evidence continues to suggest a tobacco use prevention benefit to district administrators and school administrators expressing strong support for tobacco free policies and TUPE activities, generally. Such support yields teachers more committed to teaching TUPE lessons and students more receptive to adopting anti-tobacco norms and to avoiding tobacco use.

A more specific recommendation is for schools to train teachers to recommend the California 800-NO-BUTTS helpline to students and staff who want help quitting their tobacco use habit. Results showed that about half of all teachers were unaware that the California helpline is a free cessation counseling service available to students.

Although it is not addressed in this report, the excise tax authority of the state can be used to increase the cost of cigarettes, which in turn, may reduce tobacco use onset in youth (Carpenter and Cook 2008) (Chaloupka and Pacula 1999). The Centers for Disease Control and Prevention (CDC) has identified cigarette excise taxes as one of the more consistently effective strategies for deterring tobacco use onset among youth

(Centers for Disease Control and Prevention 2010). The California Secretary of State has approved a proposition to appear on the February 12, 2012 ballot with the title: [“Imposes Additional Tax on Cigarettes for Cancer Research. Initiative Statute”](#) (Ballotpedia 2010). This ballot initiative would increase state funding for cancer-related research and for tobacco use cessation and prevention with revenues obtained by increasing the excise tax on cigarettes sold in California by \$1.00 per pack. If passed by the voters, this excise tax will make cigarettes more expensive for youth, especially impacting low-income youth, will reduce their access to cigarettes, and will increase anti-smoking media messages. This combination of increased price and increase in anti-smoking norms should deter more youth from smoking enough cigarettes to become addicted. (Slater, Chaloupka et al. 2007) (Farrelly and Bray 1998).

Future Research on Student Tobacco Use and TUPE

There is no single magic bullet tobacco control policy that will work in all schools all the time with all types of students. As general guidelines, however, the tobacco use prevention education strategies reviewed in this report and that were originally featured in the consensus school guidelines promulgated by the CDC (Centers for Disease Control (CDC) 1994) remain good bets for effective tobacco use prevention, pending further elucidation of the contexts in which each strategy works best.

Randomized controlled trials of school-based tobacco use prevention education have nonetheless shown a mixed record (Peterson, Kealey et al. 2000) (Thomas and Perera 2006) of success in part because their evaluations failed to take into account the impact of family-level (Hill, Hawkins et al. 2005) and community-level characteristics that might have affected in-school student risk of tobacco use onset. (Lovato, Zeisser et al. 2010) The density of tobacco retailers around schools, for example, has been shown to influence experimentation (but not regular use) of cigarettes by students. (McCarthy, Mistry et al. 2009) Other community characteristics shown to affect student risk of tobacco use are the prices charged for tobacco products in the community and the percentage of immigrants residing in the community, both of which have been shown to

be inversely related to student tobacco use. (Lovato, Zeisser et al. 2010) Critics of school-based tobacco use prevention efforts (Glantz and Mandel 2005) have implicitly acknowledged that when embedded in comprehensive state tobacco control programs, school-based tobacco use prevention use can contribute to overall reductions in tobacco use. (Lightwood, Dinno et al. 2008; Lightwood and Glantz 2010 -in press) but only recently have investigators begun to examine more systematically how family-level and community-level influences may have masked school-level effects. (Lovato, Zeisser et al. 2010) Including family-level and community-level influences in evaluations of school-level intervention effects is recommended. (Turner, Mermelstein et al. 2004)

An emerging trend in school-based interventions designed to reduce students' problem behaviors, including illicit drug use, bullying, alcohol use, and unprotected sex, has been to focus not just on students but on what has been called by some the "school climate." (Lee and Shute 2010) This has been accompanied by a change in focus away from risk behaviors to a focus on prosocial behaviors. (Buckley, Sheehan et al. 2009) (Buckley, Chapman et al. 2010). It has been clear for some time that identifying and intervening on risk factors alone has not been enough; (Jessor, Vandebos et al. 1995) attention needs also to be paid to protective factors, such as adolescents' impulses to help protect friends and family members from harm. (Buckley, Chapman et al. 2010) (Patten, Lopez et al. 2004)

Another emerging trend in school-based interventions is examining how individual-level socioemotional characteristics moderate potential intervention impact. (Sakuma, Sun et al. 2010) Results from a randomized controlled smoking prevention trial recently showed that only male students at highest risk for depression symptoms were responsive to the social influences curriculum. (Sakuma, Sun et al. 2010) Given the consistently high rates of depressiveness among adolescents and the consistently high association of smoking with depressiveness in adolescents (Munafo, Hitsman et al. 2008), more research is needed to address this interaction between student emotional well-being and student risk of tobacco addiction.

This report covered only some of the epidemiological information that could potentially be extracted from the data collected and reported here. Future analyses of these data by other investigators may illuminate measured influences not addressed here. As a one-time snapshot of the tobacco use status of in-school youth, these data do not permit causal inferences to be made with any confidence. When viewed in light of recent past and future tobacco use data also collected from in-school California youth, causal inferences can be made with more confidence. No single study can capture all of the major influences on adolescent tobacco use. The reader is encouraged to review the epidemiological findings reported here in light of the changing conception of the determinants of adolescent tobacco use behavior emerging in the scientific literature. (e.g., (Turner, Mermelstein et al. 2004)) (Lovato, Zeisser et al. 2010)

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